North Mississippi Refuges Complex

Coldwater River National Wildlife Refuge
Dahomey National Wildlife Refuge
Tallahatchie National Wildlife Refuge

Annual Narrative
Grenada, Mississippi

Calendar Year 2013

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Project Leader — Date
Stephen Gard

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Refuge Supervisor, Area I — Date
Ricky Ingram

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Regional Chief, NWRS, Southeast Region — Date
David Viker

"The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

National Wildlife Refuge System Improvement Act of 1997

Introduction

The North Mississippi Refuges Complex (NMRC) was established in Grenada, Mississippi in 1989, primarily to manage the increased land base acquired through the transfer of properties to the U.S. Fish and Wildlife Service (Service) by the Farmers Home Administration (FmHA), now the Farm Service Agency (FSA), and the acquisition of Coldwater River, Dahomey, and Tallahatchie National Wildlife Refuges (NWR). At that time, there were no other stations in an appropriate geographical location to manage these lands. After several management decisions and boundary changes, NMRC's final geographical boundaries contained 26 counties in northern Mississippi. NMRC is divided into three work areas. Each work area is comprised of one refuge and all FSA properties within that area (figure 1).

Farm Service Agency lands are properties that the U.S. Department of Agriculture (USDA) foreclosed on, or the owner voluntarily deeded his land back to the USDA due to lack of payment on loans. The original owner was given the right to buy back the land, but Executive Order 11990 required the wetlands on these properties to be set aside or protected. Most of the properties that the original owners did not buy back were transferred in fee title to the Service. Other such properties were purchased by the original owner, but were subject to restrictive USDA easements. Easement management responsibilities of these properties were transferred to the Service and are considered units of the National Wildlife Refuge System. Farm Service Agency lands range from 1 acre to over 1,200 acres in size and are categorized as follows:

1. Fee Title Properties: These properties are now considered public land and are managed as units of the National Wildlife Refuge System.

2. Conservation Easements: The ownership of these properties remains in the private sector, but the Service retains most management rights. For example, these lands can no longer be farmed and the Service is allowed to mow, install water control structures, build levees, burn, plant seedlings or acorns, and manage water levels.

3. Floodplain Easements: The less restrictive of the two easements, the ownership remains in the private sector, with restrictions that prohibit degradation of the existing floodplain values. The land owner is usually allowed to farm acreage that was previously in cultivation, but the easement prevents further draining or clearing of the land. These easements often contain smaller, more restrictive conservation easements within their boundaries.

In 1989, there were four recorded easements for a total land base of 1,070 acres. As of 2009, NMRC manages three traditional refuges totaling 16,592 acres, 48 FSA Fee Title tracts totaling 10,684 acres, 57 Conservation Easements totaling 4,330 acres, and 22 Floodplain easements totaling 2,220 acres (Figure 2 and Table 1).

Northern shoveler at Dahomey NWR (L. Pace/Friends of Dahomey NWR)

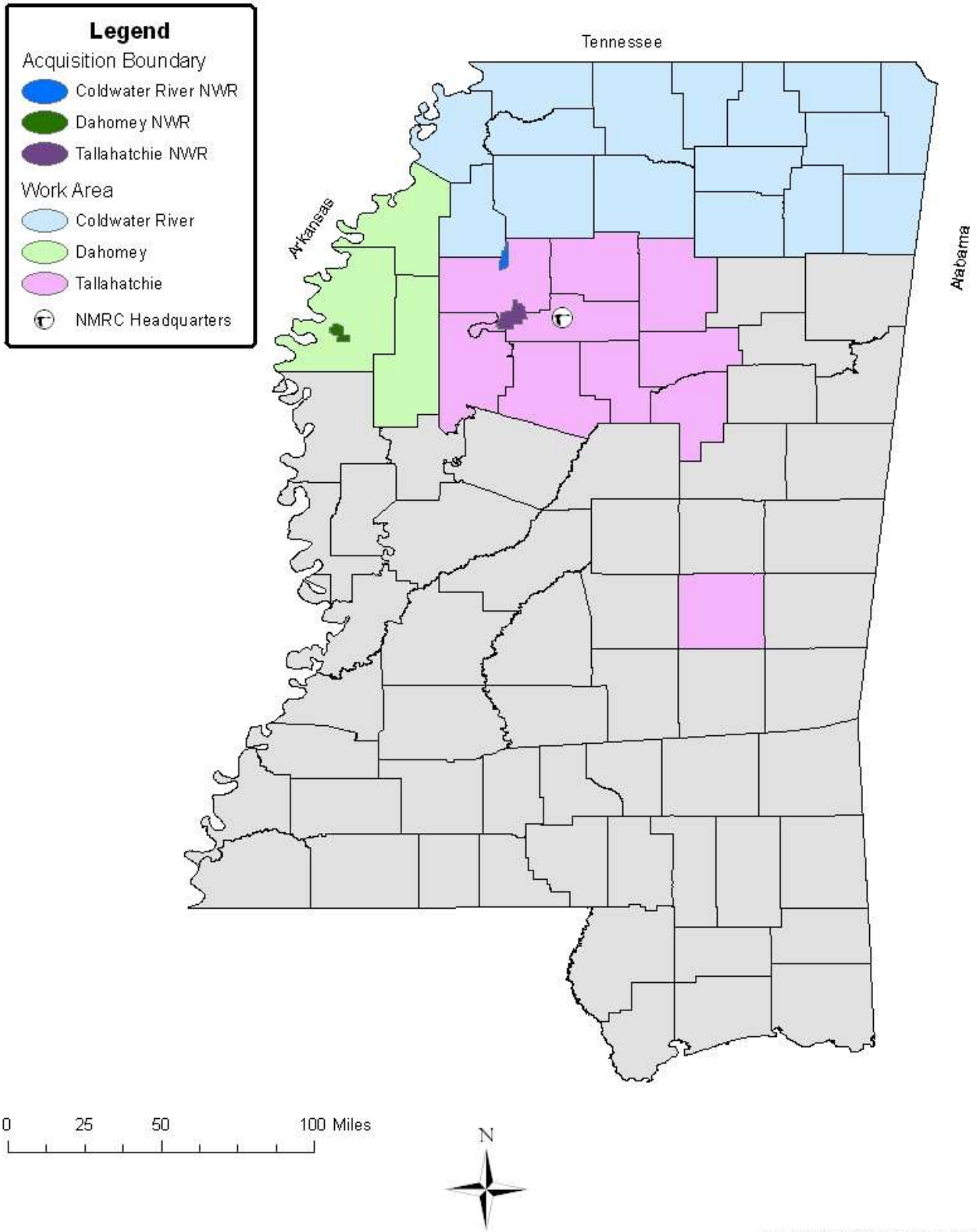

Figure 1: The NMRC work area

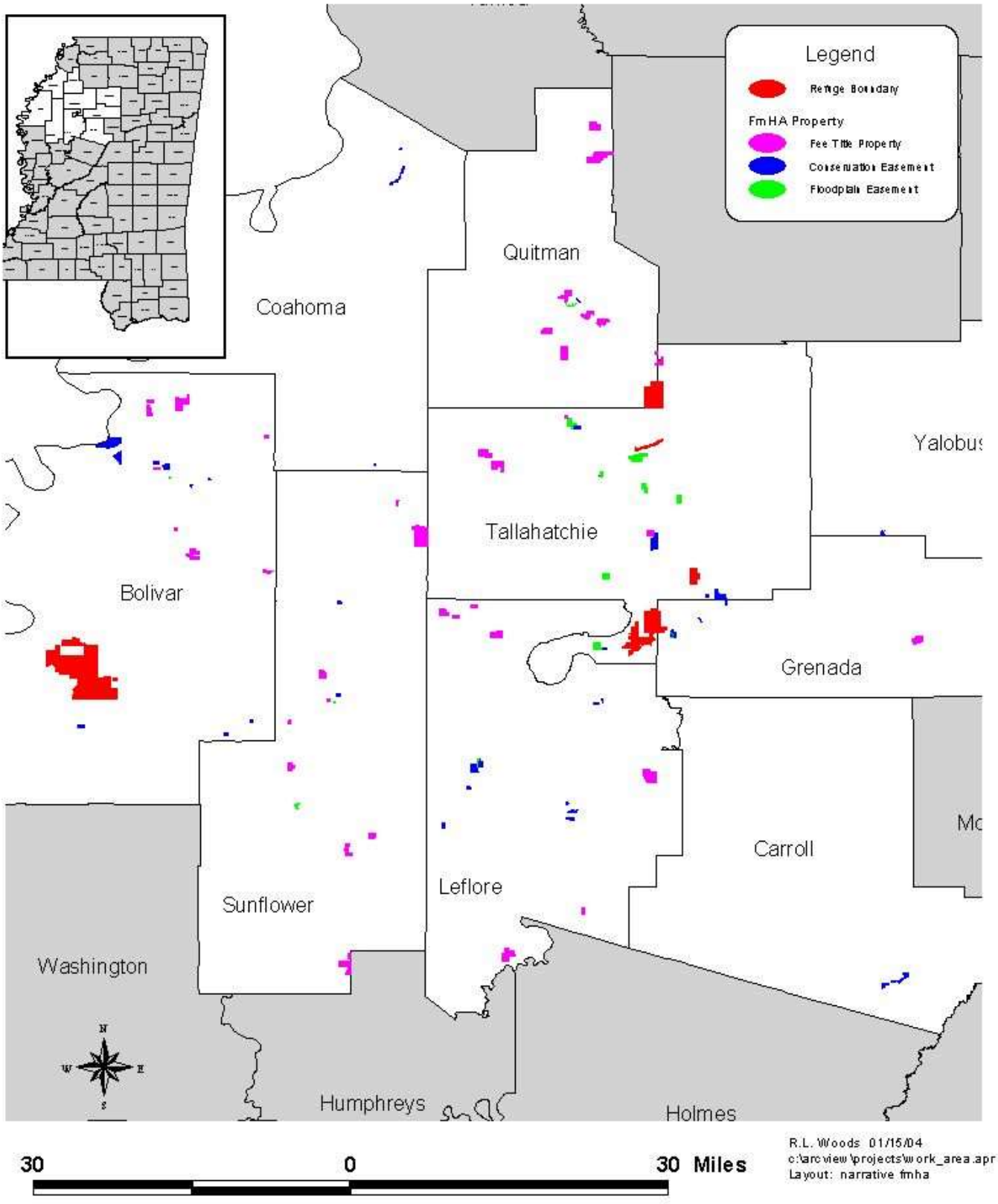

Figure 2: The nine counties containing most of the properties administered by NMRC.

Table 1: Properties managed by NMRC.

REFUGE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**ESTATE**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**YEAR ACQUIRED**	**LAT/LON**
Dahomey NWR								
Allen Gray Estate/TNC	BOLIVAR	9,269	Fee Title	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 17, 19, 22 & 27-34; T21N R7W SEC. 1-4 & 9-12	1993	33°42'N 90°55'W
MS Dept of Trans. (DOT)	BOLIVAR	162	Fee Title	CHOCTAW	LOBDELL	T22N R7W SEC. 34	1991	33°42'N 90°54'W
West Bolívar Co. School Board	BOLIVAR	260	Lease	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 16	N/A	33°45'N 90°09'W
DAHOMEY NWR	**TOTAL ACRES**	**9,691**						
TALLAHATCHIE NWR								
Walker Tract	TALLAHATCHIE	557	Fee Title	PHILIPP	CASCILLA	T23N R2E SEC. 21, 22 & 28	1991	30°50'N 90°05'W
John Whitten	GRENADA, TALLAHATCHIE	509	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC.13 & 24; T22N R2E SEC. 18	1992	33°45'N 90°08'W
John Hancock	GRENADA, TALLAHATCHIE	1,361	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 1, 12 & 13; T22N R2E SEC. 7 & 18	1992	33°47'N 90°08'W
Chicago Mills/DOT	TALLAHATCHIE	1,656	Fee Title	GREENWOOD, PHILIPP	MONEY, PHILIPP	T22N R1E SEC. 14, 22-27 & 34	1997	33°45'N 90°09'W
Sayle Tract	TALLAHATCHIE	116	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 24	2003	33°45'N 90°08'W
TALLAHATCHIE NWR	**TOTAL ACRES**	**4,199**						
COLDWATER RIVER NWR								
Travelers Insurance	QUITMAN, TALLAHATCHIE	1,730	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 30 & 31; T26N R1E SEC. 25 & 36	1991	34°5'N 90°08'W
Shiele Tract	TALLAHATCHIE	40	Fee Title	CROWDER	CROWDER	T26N R2E SEC. 7	1996	34°8'N 90°08'W
Duck Ponds Inc.	QUITMAN, TALLAHATCHIE	298	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 19; T26N R1E SEC. 24	1996	34°6'N 90°08'W
Warwick Tract	TALLAHATCHIE	306	Fee Title	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 23 & 24; T25N R2E SEC. 18 & 19	2001	
COLDWATER RIVER NWR	**TOTAL ACRES**	**2,374**						

FmHA FEE TITLE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**Tract #**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**DATE ACQUIRED**	**LAT/LON**
CARMICLE	BOLIVAR	40	14.00	PACE	SHELBY	T24N R6W SEC. 26	07/26/91	33°54'N 90°47'W
GOSS	BOLIVAR	543	17.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 35 & 36; T25N R6W SEC. 2	07/14/94	34°05'N 90°47'W
HESTER, T. III	BOLIVAR	389	13.00	PACE	PACE	T23N R6W SEC. 1	07/26/91	33°52'N 90°46'W
HOLCOMB, D.	BOLIVAR	40	12.00	CLARKSDALE	DUNCAN	T25N R5W SEC. 13	07/26/91	34°02'N 90°40'W
RAY	BOLIVAR	50	18.00	PACE	SHELBY	T25N R6W SEC. 33	09/27/94	33°59'N 90°49'W
RILEY	BOLIVAR	100	11.00	MOUND BAYOU	MERIGOLD	T23N R5W SEC. 13	07/26/91	33°50'N 90°40'W
WATTS, J.	BOLIVAR	214	16.00	MELLWOOD	ROUND LAKE	T25N R6W SEC. 4	07/31/92	34°04'N 90°50'W
WATTS, J.	BOLIVAR	81	16.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 33	07/31/92	34°04'N 90°49'W
GILLON	GRENADA	245	11.00	GRENADA	GRENADA	T22N R5E SEC. 21	07/14/93	33°45'N 89°46'W
GWIN	LEFLORE	343	16.00	SUMNER	GLENDORA	T22N R2W SEC. 13 & 24	02/19/92	33°45'N 90°21'W
HENSON	LEFLORE	165	19.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	07/15/92	33°19'N 90°20'W
HENSON / A.C.O.E.	LEFLORE	275	no	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	?	33°19'N 90°20'W
KIMBROUGH, A.M.	LEFLORE	40	18.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 18	04/18/92	33°19'N 90°20'W
MILLICAN, H.	LEFLORE	2	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 30	03/05/92	33°23'N 90°14'W
MILLICAN, H.	LEFLORE	76	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 31	03/05/92	33°23'N 90°14'W
ROBERTSON	LEFLORE	655	14.00	GREENWOOD	GREENWOOD	T20N R1E SEC. 24 & 25	10/02/90	33°34'N 90°08W
SCOTT	LEFLORE	226	20.00	SUMNER	BROOKS	T22N R2W SEC. 8	09/01/94	33°47'N 90°25'W
SCOTT	LEFLORE	80	20.00	SUMNER	BROOKS	T22N R2W SEC. 3	09/01/94	33°48'N 90°23'W
SCOTT	LEFLORE	90	20.00	SUMNER	BROOKS	T22N R2W SEC. 9	09/01/94	33°47'N 90°24'W
SMITH, E.	MARSHALL	232	10.00	POTTS CAMP	MALONE	T5S R2W SEC. 28 & 29		34°37'N 89°25'W
WHALEY	MARSHALL	437	11.00	POTTS CAMP	BETHLEHEM	T6S R1W SEC. 6 & 7; T6S R2W SEC.1		34°35'N 89°21'W
BUTLER	QUITMAN	245		TUTWILER	LAMBERT	T27N R1W SEC. 11, 12 & 14	04/01/99	34°13'N 90°15'W
SAVAGE, E.	QUITMAN	59	10.00	TUTWILER	LAMBERT	T27N R1W SEC. 11	11/06/90	34°13'N 90°16'W
SAVAGE, P.	QUITMAN	40	13.00	CROWDER	CROWDER	T26N R1E SEC. 1	09/01/93	34°08'N 90°08'W
SAVAGE, P.	QUITMAN	20	13.00	CROWDER	CROWDER	T26N R1E SEC. 12	09/01/93	34°07'N 90°08'W
STARR, R.	QUITMAN	750	12.00	SLEDGE	CRENSHAW SOUTH	T8S R10W SEC. 1 & 2	06/02/91	34°25'N 90°13'W
STARR, R.	QUITMAN	320	12.00	SLEDGE	CRENSHAW SOUTH	T7S R10W SEC. 23	06/02/91	34°27'N 90°13'W
TRAINOR / BOYD	QUITMAN	382	11.00	TUTWILER	LAMBERT	T26N R1W SEC. 2 & 11	11/06/90	34°09'N 90°15'W
TRAINOR / BOYD	QUITMAN	219	11.00	CROWDER	CROWDER	T27N R1E SEC. 19& 20	11/06/90	34°12'N 90°14'W
TRAINOR / BOYD	QUITMAN	188	11.00	CROWDER	CROWDER	T27N R1E SEC. 20, 21 & 29	11/06/90	34°11'N 90°12'W
TRAINOR / BOYD	QUITMAN	228	11.00	TUTWILER	LAMBERT	T27N R1W SEC. 27	11/06/90	34°10'N 90°17'W
BOWLING	SUNFLOWER	170	14.00	BAIRD	MOOREHEAD	T19N R3W SEC. 29	12/06/91	33°29'N 90°31'W
LINDSEY, L.	SUNFLOWER	160	13.00	CLEVELAND	BOYER	T20N R4W SEC. 17	07/26/91	33°34'N 90°38'W
LINDSEY, L.	SUNFLOWER	40	13.00	CLEVELAND	RULEVILLE	T21N R4W SEC. 14	07/26/91	33°40'N 90°35'W
LINDSEY, L.	SUNFLOWER	204	13.00	CLEVELAND	RULEVILLE	T22N R4W SEC. 3	07/26/91	33°42'N 90°35'W
POVALL / KITCHENS	SUNFLOWER	180	11.00	BAIRD	MOOREHEAD	T19N R4W SEC. 25	11/06/90	33°27'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	422	11.00	BAIRD	INVERNESS	T17N R4W SEC. 24 & 25	11/06/90	33°18'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	80	11.00	BAIRD	INVERNESS	T17N R4W SEC. 13 & 18	11/06/90	33°19'N 90°33'W
WALKER	SUNFLOWER	42	10.00	CLEVELAND	CLEVELAND	T21N R4W SEC. 29	10/02/90	33°38'N 90°38'W
PATTERSON / WHITTEN	SUNFLOWER	46	15.00	SUMNER	ROME	T24N R3W SEC. 15 & 22	09/01/94	33°56'N 90°29'W
WILKINS	SUNFLOWER	1,204	12.00	SUMNER	ROME	T24N R3W SEC. 35 & 36; T23N R3W SEC. 1	05/02/91	33°54'N 90°22'W
CASTLEBERRY	TALLAHATCHIE	94	12.00	CROWDER	CROWDER	T26N R2E SEC. 7	11/01/93	34°07'N 90°07'W
JAMES	TALLAHATCHIE	160	10.00	PHILLIP	TIPPO	T24N R1E SEC. 36	10/11/90	33°54'N 90°08'W
PENNINGTON	TALLAHATCHIE	470	17.00	SUMNER	WEBB & VANCE	T25N R2W SEC.36		33°59'N 90°21'W
PENNINGTON	TALLAHATCHIE	360	17.00	TUTWILER	TUTWILER & VANCE	T25N R2W SEC. 26		34°00'N 90°22'W
PENNINGTON	TALLAHATCHIE	40	17.00	TUTWILER	VANCE	T25N R1W SEC. 2		34°03'N 90°15'W
FOOSHEE / SMITH	UNION	104	10.00	NEW ALBANY	NEW ALBANY WEST	T7S R2E SEC. 32 & 33	07/22/94	34°26'N 89°06'W
FOOSHEE / SMITH	UNION	134	10.00	NEW ALBANY	ETTA, NEW ALBANY WEST	T7S R2E SEC. 31 & 32	07/22/94	34°26'N 89°07'W
48 FEE TITLE PROPERTIES IN 8 COUNTIES		**10,684**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
BELL / CRAB	ALCORN	40	10C	WALNUT	CHALYBEATE	T2S R5E SEC. 29	11/25/91	34°53'N 88°47'W
TURNER / TALLEY	ALCORN	8	11C	CORINTH	KUSSUTH NORTH	T1S R6E SEC. 35	02/22/95	34°57'N 88°37'W
BALDUCCI	BOLIVAR	12	19C	MOUND BAYOU	MOUND BAYOU	T24N R5W SEC. 6	10/13/95	33°58'N 90°45'W
BALDUCCI	BOLIVAR	12	19C	PACE	SHELBY	T24N R6W SEC. 1	10/13/95	33°58'N 90°46'W
BASS, B.H.	BOLIVAR	69	15C	PACE	SHELBY	T25N R6W SEC. 33	04/21/92	33°59'N 90°49'W
BASS, B.H.	BOLIVAR	277	15C	MELLWOOD	LACONIA, ROUND LAKE & SHELBY	T25N R7W SEC. 25 & 36	04/21/92	34°00'N 90°52'W
BASS, B.H.	BOLIVAR	723	15C	MELLWOOD	LACONIA & ROUND LAKE	T25N R7W SEC. 23 & 24	04/21/92	34°01'N 90°52'W
CLIFTON, R.	BOLIVAR	97	10C	CHOCTAW	LOBDELL	T21N R7W SEC. 28	12/18/89	33°08'N 90°55'W
HESTER, T. JR.	BOLIVAR	55		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
HESTER, T. JR.	BOLIVAR	35		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 26		33°47 'N 90°43'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 33		33°38'N 90°41'W
CALHOUN / DANCE	CARROLL	149	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31 & 32		33°17'N 89°47'W
CALHOUN / DANCE	CARROLL	57	10C	COILA	PEACHAHALA CREEK	T16N R5E SEC. 6		33°16'N 89°49'W
CALHOUN / DANCE	CARROLL	16	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31		33°17'N 89°48'W
ALLEN	COAHOMA	4	11C	MARKS	LULA	T30N R3W SEC. 34		34°25'N 90°29'W
ALLEN	COAHOMA	52	11C	MARKS	LULA	T29N R3W SEC. 10 & 15		34°22'N 90°29'W
ALLEN	COAHOMA	31	11C	MARKS	LULA	T29N R3W SEC. 10 & 11		34°23'N 90°29'W
ALLEN	COAHOMA	30	11C	MARKS, FARRELL	LULA	T29N R3W SEC. 15		34°22'N 90°30'W
SAFLEY / BRADY	COAHOMA	13	10C	MOUND BAYOU	BALTZER	T25N R3W SEC. 32	02/26/90	33°59'N 90°31'W
STATEN	GRENADA	74	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20		33°45'N 90°06'W
HARRIS, W.L.	GRENADA	18	10C	PHILIPP	CASCILLA	T22N R2E SEC. 10		33°46'N 90°04'W
MOOR, R.B.	LEFLORE	11	15C	GREENWOOD	GREENWOOD	T19N R1W SEC. 12	11/29/90	33°31'N 90°14'W
MOOR, R.B.	LEFLORE	77	15C	GREENWOOD & SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31 'N 90°15'W
MOOR, R.B.	LEFLORE	17	15C	SCHLATER	SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31'N 90°15'W
MOOR, R.B.	LEFLORE	58	15C	SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 13	11/29/90	33°30'N 90°15'W
TRIBBLE	LEFLORE	12		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°12'W
TRIBBLE	LEFLORE	28		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°13'W
HAWKINS	LEFLORE	33	12C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 34	09/20/90	33°33'N 90°23'W
KOLLE, R	LEFLORE	109	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°35'N 90°22'W
UPCHURCH / PRESTRIDGE	LEFLORE	250	11C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 22, 26 & 27	10/01/90	33°34'N 90°23'W
SAUNDERS	LEFLORE	15	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
SAUNDERS	LEFLORE	45	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
TRAINOR, E. L.	QUITMAN	6	16C	CROWDER	CROWDER	T27N R1W SEC. 12 & 13	01/01/98	34°13'N 90°14'W
MOSES	SUNFLOWER	25			DREW	T22N R4W SEC. 1		
POWELL	SUNFLOWER	40	16C	CLEVELAND	RULEVILLE	T21N R4W SEC. 11		33°40'N 90°34'W
DAVIS, HIRAM	TALLAHATCHIE	17	13C	PHILIPP	MONEY	T22N R1E SEC. 29	02/15/90	33°44'N 90°12'W
DENMAN	TALLAHATCHIE	8	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°59'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
HARRIS, W.L.	TALLA.,GRENA.	389	10C	PHILIPP	CASCILLA	T23N R2E SEC. 35 & 36; T22N R2E SEC. 1	04/28/89	33°48'N 90°03'W
HARRIS, W.L.	TALLAHATCHIE	40	10C	PHILIPP	CASCILLA	T23N R2E SEC. 34	04/28/89	33°48'N 90°04'W
MABUS	TALLAHATCHIE	42	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 26 & 27		34°00'N 90°10'W
MABUS	TALLAHATCHIE	416	16C	PHILLIP	PHILIPP & TIPPO	T24N R1E SEC. 36; T23N R1E SEC. 1 & 12		33°53'N 90°08'W
MABUS	TALLAHATCHIE	7	16C	PHILLIP	PHILIPP	T23N R1E SEC. 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	81	11C	CROWDER & TUTWILER	CROWDER	T25N R1W SEC. 12	11/02/90	34°02'N 90°14'W
MILAM	TALLAHATCHIE	3		PHILIPP	TIPPO	T24N R1E SEC. 11	10/22/98	33°57'N 90°09'W
MILAM	TALLAHATCHIE	40		PHILIPP	TIPPO	T24N R1E SEC. 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	35	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°57'N 90°06'W
BENSON	UNION	76		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	1		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 20 & 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	26		NEW ALBANY	ETTA	T7S R1E SEC. 17& 20	07/01/99	34°28'N 89°13'W
BENSON	UNION	6		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
HARRIS, W.L.	WEBS., CHOC.	515	10C	not available	EUPORA & SAPA	T19N R10E SEC. 9, 10 & 15	04/28/89	33°31'N 89°14'W
HOLLAND / BOONE	YALOBUSHA	37		GRENADA	SCOBEY	T25N R4E SEC.36		33°59'N 89°49'W
57 CONSERV. EASEMENTS IN 13 COUNTIES		**4,330 ACRES**						

FmHA FLOODPLAIN EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
DAVIS, ROBERT	ALCORN	60		CORINTH	KOSSUTH NORTH	T2N R5E SEC. 25 & 26	10/6/1992	
HESTER, T. JR.	BOLIVAR	4		PACE	SHELBY	T24N R6W SEC. 3		33°59'N 90°48'W
STATEN	GRENADA	190	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20	07/14/95	33°45'N 90°06'W
KOLLEE, R	LEFLORE	191	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°53'N 90°22'W
McCLATCHY	MARSHALL	124	12C	TYRO	MARIANNA	T4S R3W SEC. 22		34°43'N 89°30'W
TRAINOR, E. L.	QUITMAN	3		TUTWILER	LAMBERT	T27N R1W SEC. 13 & 14	01/01/98	34°12'N 90°15'W
TRAINOR, E. L.	QUITMAN	16		CROWDER & TUTWILER	CROWDER & LAMBERT	T27N R1W SEC. 13	01/01/98	34°12'N 90°15'W
POWELL	SUNFLOWER	1		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		
POWELL	SUNFLOWER	7		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		33°40'N 90°34'W
POWELL	SUNFLOWER	21		CLEVELAND	BOYER & SUNFLOWER	T20N R4W SEC. 32		33°31'N 90°37'W
POWELL	SUNFLOWER	24		CLEVELAND	BOYER	T19N R4W SEC. 5		33°31'N 90°37'W
DAVIS, HIRAM	TALLAHATCHIE	240	13C	PHILIPP	MONEY	T22N R1E SEC. 29		33°44'N 90°13'W
DENMAN	TALLAHATCHIE	77	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
MABUS	TALLAHATCHIE	429	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 25 & 26		34°00'N 90°09'W
MABUS	TALLAHATCHIE	168	16C	PHILIPP	PHILIPP	T23N R1E SEC. 20 & 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	217	11C	CROWDER & TUTWILER	CROWDER & VANCE	T25N R1W SEC. 12	11/02/90	34°03'N 90°15'W
MILAM	TALLAHATCHIE	160		PHILIPP	TIPPO	T24N R1E SEC. 11 & 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	160	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°56'N 90°06'W
BENSON	UNION	43		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 20	07/01/99	34°27'N 89°13'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°28'N 89°13'W
BENSON	UNION	13		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
22 FLOODPLAIN EASEMENTS IN 9 COUNTIES		**2,220 ACRES**						

Coldwater River NWR

Coldwater River National Wildlife Refuge, formerly the Black Bayou Unit of the Tallahatchie National Wildlife Refuge, was originally established in 1991 under the Migratory Bird Conservation Act and the Consolidated Farm and Rural Development Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds" and for conservation purposes. Specifically, the draft Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for Canada geese, mallard, pintail, blue-winged teal, and wood duck and production habitat for wood duck…" in accordance with the goals in the North American Waterfowl Management Plan. It received designation as a "stand alone" refuge in 2001. The work area for Coldwater River NWR covers 16 counties and includes Coldwater River NWR (2,694 acres), 15 FSA Fee-title properties (3,452 acres), 9 Conservation Easements (165 acres), and 8 Floodplain Easements (331 acres) (Table 2).

Location

Coldwater River NWR is located in the delta region of Mississippi in Quitman and Tallahatchie Counties, approximately 6 miles northwest of Charleston, Mississippi (Figure 3). The refuge is approximately 45 minutes from the Grenada Headquarters office, where staff is located. The refuge lies between the Panola-Quitman Floodway, a channelized route for the Tallahatchie River, and the Old Tallahatchie River. During most winters, water will back up from the confluence of the two waterways and back flow onto the refuge.

Historic Condition

Coldwater River NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. The closest major water body is the Tallahatchie River, less than 3 miles west of the refuge. Historically, the area would have been subject to seasonal flooding, as the Tallahatchie River over-topped its banks and spread into the surrounding floodplain. This seasonal flooding replenished nutrients in the bottomland area and allowed the formation of a bottomland hardwood forest, probably dominated by oaks, sweet gum, and sugarberry. The lower areas were likely flooded most of the year and would have been dominated by cypress and tupelo. In dry years, these areas would have likely supported annual grasses and sedges, which would provide additional seeds for waterfowl in the winter.

Soils in this area reflect the hydrological history of the area, consisting primarily of Waverly-Calhoun and Pearson-Brittain-Waverly Associations. In general, these are poorly drained acidic soils that are generally too wet in the winter and spring to be suitable for residential and industrial development. They were formed, at least in part, from silty alluvium deposited by the Tallahatchie River. This area is also characterized by a high water table, further slowing drainage in the spring. This is supported by the presence of several artesian wells scattered across the property.

Table 2: Properties managed by Coldwater River National Wildlife Refuge.

REFUGE PROPERTIES								
NAME	COUNTY	ACRES	ESTATE	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	YEAR ACQUIRED	LAT/LON
Travelers Insurance	QUITMAN, TALLAHATCHIE	1,730	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 30 & 31; T26N R1E SEC. 25 & 36	1991	34°5'N 90°08'W
Shiele Tract	TALLAHATCHIE	40	Fee Title	CROWDER	CROWDER	T26N R2E SEC. 7	1996	34°8'N 90°08'W
Warwick Tract	TALLAHATCHIE	306	Fee Title	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 23 & 24 T25 R2E SEC. 18 & 19	2001	
Duck Ponds Inc.	QUITMAN, TALLAHATCHIE	298	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 19; T26N R1E SEC. 24	1996	34°6'N 90°08'W
Crowder Partners	QUITMAN	328	Fee Title	CROWDER	FISH HOOK LAKE	T26N R1E SEC 13 & 24	2007	
COLDWATER RIVER NWR	**TOTAL ACRES**	**2,702**						

FmHA FEE TITLE PROPERTIES								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
SMITH, E.	MARSHALL	232	10.00	POTTS CAMP	MALONE	T5S R2W SEC. 28 & 29		34°37'N 89°25'W
WHALEY	MARSHALL	437	11.00	POTTS CAMP	BETHLEHEM	T6S R1W SEC. 6 & 7; T6S R2W SEC.1		34°35'N 89°21'W
CASTLEBERRY	TALLAHATCHIE	94	12.00	CROWDER	CROWDER	T26N R2E SEC. 7	11/01/93	34°07'N 90°07'W
BUTLER	QUITMAN	245		TUTWILER	LAMBERT	T27N R1W SEC. 11, 12 & 14	04/01/99	34°13'N 90°15'W
SAVAGE, E.	QUITMAN	59	10.00	TUTWILER	LAMBERT	T27N R1W SEC. 11	11/06/90	34°13'N 90°16'W
SAVAGE, P.	QUITMAN	40	13.00	CROWDER	CROWDER	T26N R1E SEC. 1	09/01/93	34°08'N 90°08'W
SAVAGE, P.	QUITMAN	20	13.00	CROWDER	CROWDER	T26N R1E SEC. 12	09/01/93	34°07'N 90°08'W
STARR, R.	QUITMAN	750	12.00	SLEDGE	CRENSHAW SOUTH	T8S R10W SEC. 1 & 2	06/02/91	34°25'N 90°13'W
STARR, R.	QUITMAN	320	12.00	SLEDGE	CRENSHAW SOUTH	T7S R10W SEC. 23	06/02/91	34°27'N 90°13'W
TRAINOR / BOYD	QUITMAN	382	11.00	TUTWILER	LAMBERT	T26N R1W SEC. 2 & 11	11/06/90	34°09'N 90°15'W
TRAINOR / BOYD	QUITMAN	219	11.00	CROWDER	CROWDER	T27N R1E SEC. 19& 20	11/06/90	34°12'N 90°14'W
TRAINOR / BOYD	QUITMAN	188	11.00	CROWDER	CROWDER	T27N R1E SEC. 20, 21 & 29	11/06/90	34°11'N 90°12'W
TRAINOR / BOYD	QUITMAN	228	11.00	TUTWILER	LAMBERT	T27N R1W SEC. 27	11/06/90	34°10'N 90°17'W
FOOSHEE / SMITH	UNION	104	10.00	NEW ALBANY	NEW ALBANY WEST	T7S R2E SEC. 32 & 33	07/22/94	34°26'N 89°06'W
FOOSHEE / SMITH	UNION	134	10.00	NEW ALBANY	ETTA, NEW ALBANY WEST	T7S R2E SEC. 31 & 32	07/22/94	34°26'N 89°07'W
15 FEE TITLE PROPERTIES IN 4 COUNTIES		**3,452**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
BELL / CRAB	ALCORN	40	10C	WALNUT	CHALYBEATE	T2S R5E SEC. 29	11/25/91	34°53'N 88°47'W
TURNER / TALLEY	ALCORN	8	11C	CORINTH	KUSSUTH NORTH	T1S R6E SEC. 35	02/22/95	34°57'N 88°37'W
TRAINOR, E. L.	QUITMAN	6	16C	CROWDER	CROWDER	T27N R1W SEC. 12 & 13	01/01/98	34°13'N 90°14'W
BENSON	UNION	76		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	1		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 20 & 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	26		NEW ALBANY	ETTA	T7S R1E SEC. 17& 20	07/01/99	34°28'N 89°13'W
BENSON	UNION	6		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
9 CONSERV. EASEMENTS IN 3 COUNTIES		**165**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
DAVIS, ROBERT	ALCORN	60		CORINTH	KOSSUTH NORTH	T2S R5E SEC. 25 & 26	10/6/1992	
McCLATCHY	MARSHALL	124	12C	TYRO	MARIANNA	T4S R3W SEC. 22		34°43'N 89°30'W
TRAINOR, E. L.	QUITMAN	3		TUTWILER	LAMBERT	T27N R1W SEC. 13 & 14	01/01/98	34°12'N 90°15'W
TRAINOR, E. L.	QUITMAN	16		CROWDER & TUTWILER	CROWDER & LAMBERT	T27N R1W SEC. 13	01/01/98	34°12'N 90°15'W
BENSON	UNION	43		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 20	07/01/99	34°27'N 89°13'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°28'N 89°13'W
BENSON	UNION	13		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
8 FLOODPLAIN EASMENTS IN 4 COUNTIES		**331**	**ACRES**					

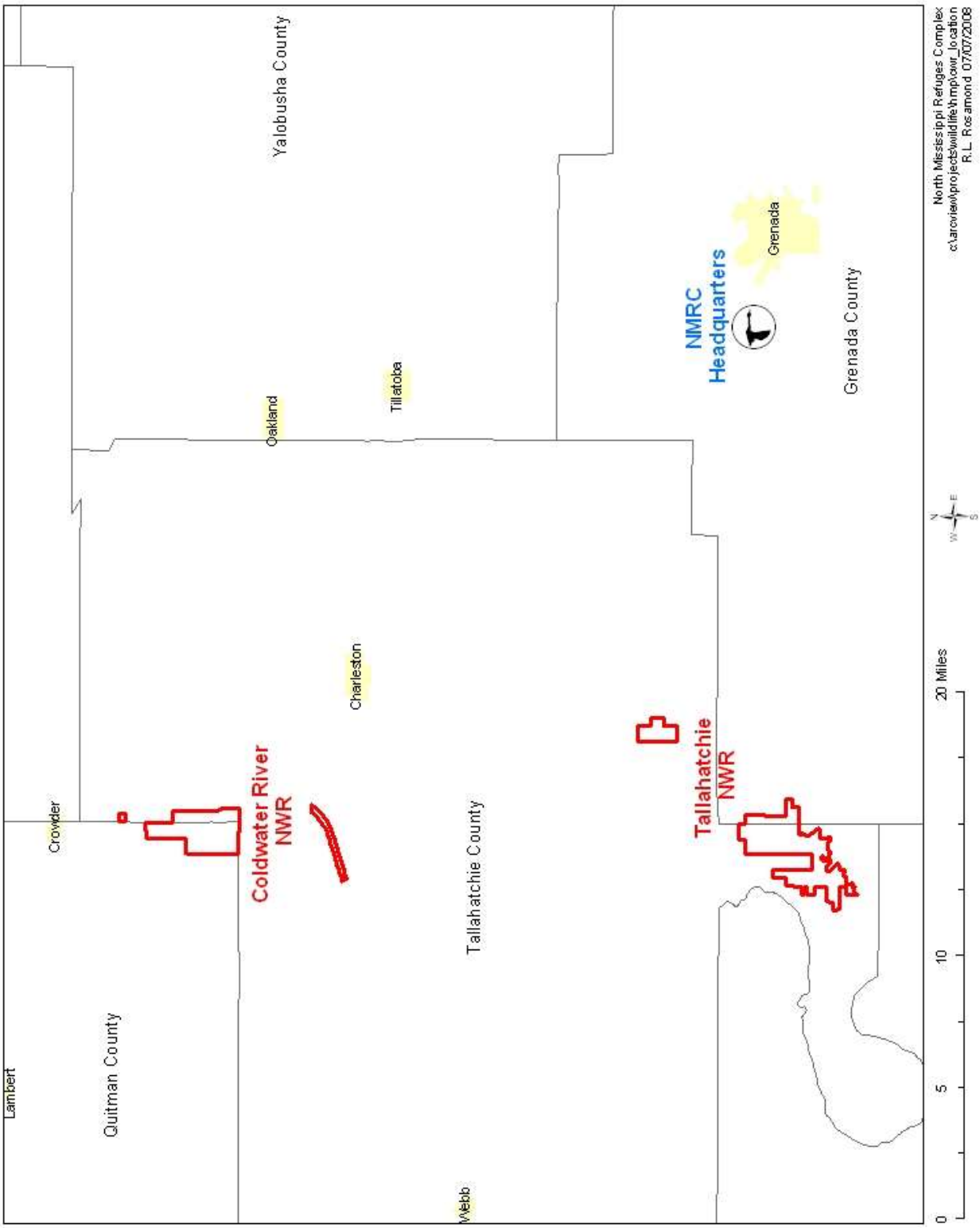

Figure 3: Location of Coldwater River National Wildlife Refuge.

Current Condition

Coldwater River NWR currently consists of 2,694 acres which includes 420 acres of moist soil units, 300 acres of fallow fields, 350 acres of borrow pits, 328 acres of agricultural fields, and over 1,000 acres of reforestation areas (Figure 4). Presently, the bulk of the management occurs on the moist soil units. Units are drained during the spring on a rotational basis to provide a mosaic of habitats. Moist soil vegetation is encouraged and units are reflooded in the fall to provide habitat for waterfowl. Several units are drained during the summer to provide foraging habitat for shorebirds. At the present time, 18 units are actively managed, while the remaining six are passively managed and contain a variety of willow, buttonbush and other perennial plant species.

The 300 acres of fallow fields are strip mowed on a 3-year rotational basis to provide habitat for migratory birds, while no active management occurs on either the borrow pits or the reforestation areas at present. In previous years, the agricultural area was cooperatively farmed, producing milo, corn, rice, and/or soybeans. No cooperative farming occurred in 2013.

Management Practices from Historic to Current Conditions

Historically, the area was dominated by bottomland hardwood forest, consisting of oaks, sugarberry, sweet gum and hickories, with the sloughs dominated by cypress and tupelo. In 1908, the Lamb-Fish Lumber Company built a sawmill in Charleston, which was hailed as "the largest hardwood mill in the world," and was equipped with "the most complete and up-to-date" machinery. The mill had an average daily capacity of 150,000 feet of one-inch lumber. Much of the land in the general area was cleared, beginning around this time.

The Panola-Quitman Floodway was constructed in 1924 and is a diversionary canal of the Little Tallahatchie River (Figure 5). It receives discharge from both Sardis and Enid Lakes, two flood control reservoirs built in 1940 and 1952, respectively. Rather than the Little Tallahatchie joining the Coldwater River and forming the Tallahatchie River, the flow is diverted into the Panola-Quitman Floodway. The Floodway joins the Tallahatchie River much further downstream, approximately 13 miles south of the mouth of the Little Tallahatchie River. Levee Road, a large Army Corps of Engineers levee, lies immediately west of the Floodway and north of its confluence with the Tallahatchie River. From late fall, through early spring, water will back flow from the confluence resulting in sheet water covering the land between the Tallahatchie River and Levee Road.

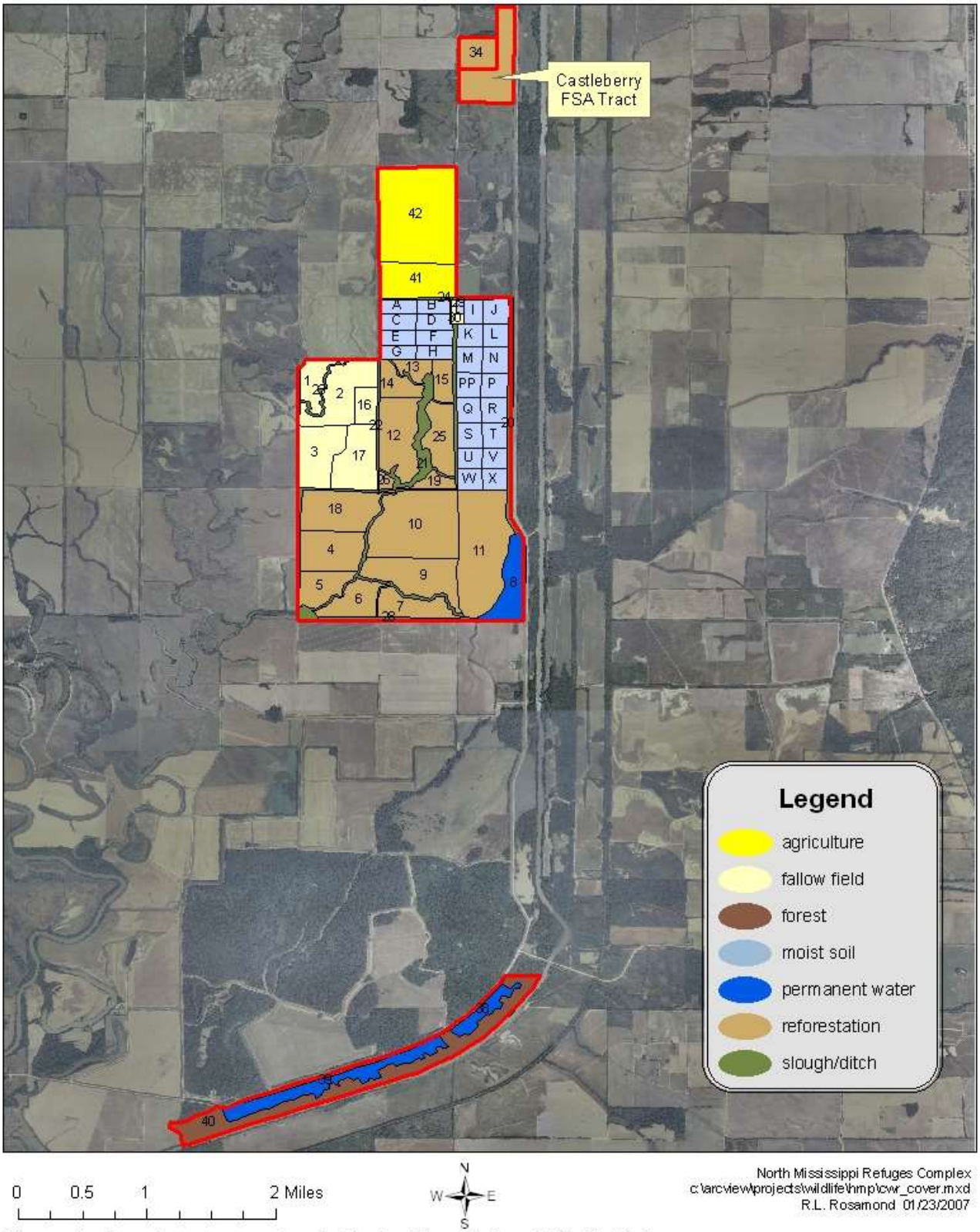

Figure 4: Cover types present on Coldwater River National Wildlife Refuge.

Coldwater River NWR and the area to the south, remained mostly forested until the soybean boom of the mid-1970s, probably due largely to the fact the area was low-lying and extremely prone to flooding. Southern landowners began constructing private levees to protect their agricultural lands from severe flooding. This exacerbated conditions for landowners to the north, who were then forced to construct their own levees, compounding the problem.

The land currently known as Coldwater River NWR was cleared prior to 1978 when it was sold to The Travelers Insurance Company, Inc. Travelers leased the land to local farmers. Twenty-four ponds were constructed in 1981, ranging in size from 10 – 21 acres, and in 1990, Alred Fish Farms (later known as Duck Pond Fish Farm) purchased 12 of the ponds. (Portions of two additional ponds were included in the purchase but the property line bisected those ponds and they were not managed for catfish.) In 1991, the U.S. Fish and Wildlife Service purchased approximately 1,730 acres from Travelers Insurance Company for the establishment of Coldwater River NWR. The bulk of this area (approximately 1,550 acres) was agricultural fields currently being leased for farming. In 1994, the Farmers' Home Administration transferred the 94-acre Castleberry Tract to the Service, and in 1995 the Service purchased the adjacent 40-acre Schiele Tract. These tracts are located north of the main portion of the refuge. In 1996, the Service purchased the remaining catfish ponds (298 acres) from Duck Pond Fish Farm.

The agricultural lands were gradually taken out of production and reforested beginning in 1992. By 2000, all agricultural lands acquired had been planted with the exception of approximately 300 acres along the northwestern border which was set aside for grassland management.

The Warwick Tract (306 acres) was purchased in 2001. The land consisted of a series of borrow pits and the surrounding forest located between the ACOE levee and the Panola-Quitman Floodway. It had been used primarily for duck hunting and contained several water control structures and duck blinds. However, the levees and structures were somewhat deteriorated and did not effectively provide for water management. Additionally, due to its location, the borrow pits received backflow from the Floodway during periods of high water, causing the water level within the borrow pits to fluctuate by as much as five feet. This further reduced the possibility of effective waterfowl management on these units.

The most recent purchase, 328 acres north of the catfish ponds, was made in 2007. This was agricultural land that had most recently been farmed in soybeans and milo. Much of this acreage is low-lying and subject to flooding.

The refuge provides a juxtaposition of habitats not commonly found in the lower MAV. Coldwater River's mix of habitats and proximity to the migration corridors of the Little Tallahatchie River and the Panola-Quitman Floodway attract a diversity of migrant birds throughout the year. Thirty-four species of shorebirds have been recorded here with fifteen of these commonly seen from March-June and July-October. Peregrine falcons, least terns, black terns, and wood storks occasionally pass through the refuge during migration. Bald eagles are seen regularly in winter with an occasional golden eagle spotted. Other birds such as sedge wren, marsh wren, common yellowthroat, swamp sparrow, sora, and king rail are regularly heard or seen at this refuge. American bittern, least bittern, Lincoln's sparrow, LeConte's sparrow, and Virginia rail are seen less commonly. Mississippi kites, dickcissels, warbling vireos, and blue

grosbeaks can be seen during the summer with hundreds of egrets, ibis, and herons commonly seen during this time. Species such as snowy egret, little blue heron, black-crowned night heron, yellow-crowned night heron, white ibis and other wading birds use or have used Coldwater River NWR as a roosting location. Least flycatchers were reported as nesting here in 1996 and 1997, making this the only documented nesting location in the state. Beaver, bobcat, coyote and mink are seen on the refuge.

Coldwater River NWR (A. Breland/USFWS)

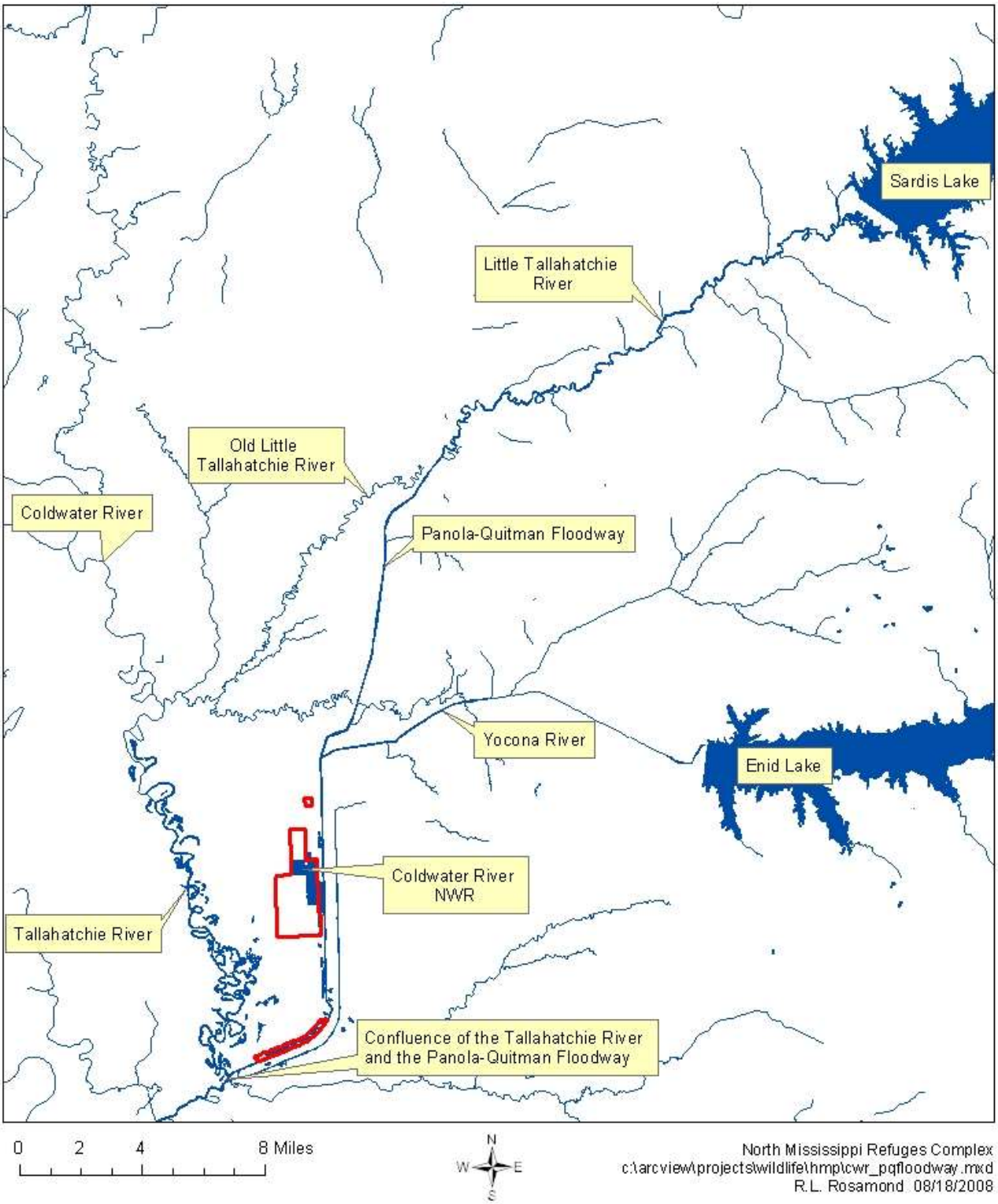

Figure 5: Relationship of the Panola-Quitman Floodway and associated rivers surrounding Coldwater River National Wildlife Refuge.

Dahomey NWR

Dahomey National Wildlife Refuge was established in 1991 under the Migratory Bird Conservation Act and the Emergency Wetlands Resource Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds," "for the development, advancement, management, conservation, and protection of fish and wildlife resources" and "for the conservation of the Wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions". Specifically, the Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for mallards, pintails, blue- and green-winged teal, and wood duck". Additional objectives include protection of breeding habitat for wood ducks and "…to provide habitat for migratory game and nongame birds and to provide opportunities for wildlife-oriented recreation and environmental education and interpretation." The work area for Dahomey NWR covers 3 counties and includes Dahomey NWR (9,691 acres), 18 FSA Fee-title properties (4,005 acres), 17 Conservation Easements (1,554 acres), and 5 Floodplain Easements (57 acres) (Table 3).

Location

Dahomey NWR is located in Bolivar County and totals 9,691 acres. The refuge is approximately 10 miles west, southwest of Cleveland, and approximately nine miles west of Boyle, on MS Highway 446 (Figure 6). Bogue Phalia, to the east of the refuge, provides the majority of the drainage for the area. Refuge tributaries flowing into Bogue Phalia include Christmas Lake Branch, Stokes Bayou, Belman Bayou, and Stillwater Bayou. In wet years, Bogue Phalia will flood, causing water to back up in these tributaries and flood the forested areas of the refuge. The flood frequency for the refuge is once about every three years.

Dahomey NWR is located in the delta region of Mississippi and at its closest point is approximately 3 miles of the Mississippi River mainline levee. With approximately 8,100 acres of forest land, it is considered the largest tract of mature bottomland hardwood forest in northwest Mississippi outside of the mainline levee.

Historic Condition

Dahomey NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. Prior to the construction of the Mississippi River mainline levee, much of the area would have experienced seasonal, and possibly prolonged, flooding. Native vegetation over this area was bottomland hardwood forests with a dense understory of vines and cane. Tree species present included cypress, water tupelo, various oak species, bitter-pecan, sweet gum, cottonwood, and sugarberry. The hard mast species present (i.e. oaks and pecans) would have provided a good food source for wintering waterfowl in these flooded bottomlands.

Table 3: Properties managed Dahomey National Wildlife Refuge.

REFUGE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**ESTATE**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**YEAR ACQUIRED**	**LAT/LON**
Allen Gray Estate/TNC	BOLIVAR	9,269	Fee Title	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 17, 19, 22 & 27-34; T21N R7W SEC. 1-4 & 9-12	1993.00	33°42'N 90°55'W
MS Dept of Trans. (DOT)	BOLIVAR	162	Fee Title	CHOCTAW	LOBDELL	T22N R7W SEC. 34	1991.00	33°42'N 90°54'W
W. Bolívar Co. School Board	BOLIVAR	260	Lease	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 16	N/A	33°45'N 90°09'W
DAHOMEY NWR	**TOTAL ACRES**	**9,691**						

FmHA FEE TITLE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**Tract #**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**DATE ACQUIRED**	**LAT/LON**
CARMICLE	BOLIVAR	40	14.00	PACE	SHELBY	T24N R6W SEC. 26	07/26/91	33°54'N 90°47'W
GOSS	BOLIVAR	543	17.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 35 & 36; T25N R6W SEC. 2	07/14/94	34°05'N 90°47'W
HESTER, T. III	BOLIVAR	389	13.00	PACE	PACE	T23N R6W SEC. 1	07/26/91	33°52'N 90°46'W
HOLCOMB, D.	BOLIVAR	40	12.00	CLARKSDALE	DUNCAN	T25N R5W SEC. 13	07/26/91	34°02'N 90°40'W
RAY	BOLIVAR	50	18.00	PACE	SHELBY	T25N R6W SEC. 33	09/27/94	33°59'N 90°49'W
RILEY	BOLIVAR	100	11.00	MOUND BAYOU	MERIGOLD	T23N R5W SEC. 13	07/26/91	33°50'N 90°40'W
WATTS, J.	BOLIVAR	214	16.00	MELLWOOD	ROUND LAKE	T25N R6W SEC. 4	07/31/92	34°04'N 90°50'W
WATTS, J.	BOLIVAR	81	16.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 33	07/31/92	34°04'N 90°49'W
BOWLING	SUNFLOWER	170	14.00	BAIRD	MOOREHEAD	T19N R3W SEC. 29	12/06/91	33°29'N 90°31'W
LINDSEY, L.	SUNFLOWER	160	13.00	CLEVELAND	BOYER	T20N R4W SEC. 17	07/26/91	33°34'N 90°38'W
LINDSEY, L.	SUNFLOWER	40	13.00	CLEVELAND	RULEVILLE	T21N R4W SEC. 14	07/26/91	33°40'N 90°35'W
LINDSEY, L.	SUNFLOWER	204	13.00	CLEVELAND	RULEVILLE	T22N R4W SEC. 3	07/26/91	33°42'N 90°35'W
POVALL / KITCHENS	SUNFLOWER	180	11.00	BAIRD	MOOREHEAD	T19N R4W SEC. 25	11/06/90	33°27'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	422	11.00	BAIRD	INVERNESS	T17N R4W SEC. 24 & 25	11/06/90	33°18'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	80	11.00	BAIRD	INVERNESS	T17N R4W SEC. 13 & 18	11/06/90	33°19'N 90°33'W
WALKER	SUNFLOWER	42	10.00	CLEVELAND	CLEVELAND	T21N R4W SEC. 29	10/02/90	33°38'N 90°38'W
PATTERSON / WHITTEN	SUNFLOWER	46	15.00	SUMNER	ROME	T24N R3W SEC. 15 & 22	09/01/94	33°56'N 90°29'W
WILKINS	SUNFLOWER	1,204	12.00	SUMNER	ROME	T24N R3W SEC. 35 & 36; T23N R3W SEC. 1	05/02/91	33°54'N 90°22'W
18 FEE TITLE PROPERTIES IN 2 COUNTIES		**4,005**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	**COUNTY**	**ACRES**	**Tract #**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**DATE ACQUIRED**	**LAT/LON**
BALDUCCI	BOLIVAR	12	19C	MOUND BAYOU	MOUND BAYOU	T24N R5W SEC. 6	10/13/95	33°58'N 90°45'W
BALDUCCI	BOLIVAR	12	19C	PACE	SHELBY	T24N R6W SEC. 1	10/13/95	33°58'N 90°46'W
BASS, B.H.	BOLIVAR	69	15C	PACE	SHELBY	T25N R6W SEC. 33	04/21/92	33°59'N 90°49'W
BASS, B.H.	BOLIVAR	277	15C	MELLWOOD	LACONIA, ROUND LAKE & SHELBY	T25N R7W SEC. 25 & 36	04/21/92	34°00'N 90°52'W
BASS, B.H.	BOLIVAR	723	15C	MELLWOOD	LACONIA & ROUND LAKE	T25N R7W SEC. 23 & 24	04/21/92	34°01'N 90°52'W
CLIFTON, R.	BOLIVAR	97	10C	CHOCTAW	LOBDELL	T21N R7W SEC. 28	12/18/89	33°38'N 90°55'W
HESTER, T. JR.	BOLIVAR	55		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
HESTER, T. JR.	BOLIVAR	35		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 26		33°47 'N 90°43'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 33		33°38'N 90°41'W
ALLEN	COAHOMA	4	11C	MARKS	LULA	T30N R3W SEC. 34		34°25'N 90°29'W
ALLEN	COAHOMA	52	11C	MARKS	LULA	T29N R3W SEC. 10 & 15		34°22'N 90°29'W
ALLEN	COAHOMA	31	11C	MARKS	LULA	T29N R3W SEC. 10 & 11		34°23'N 90°29'W
ALLEN	COAHOMA	30	11C	MARKS, FARRELL	LULA	T29N R3W SEC. 15		34°22'N 90°30'W
SAFLEY / BRADY	COAHOMA	13	10C	MOUND BAYOU	BALTZER	T25N R3W SEC. 32	02/26/90	33°59'N 90°31'W
MOSES	SUNFLOWER	25		MOUND BAYOU	MOUND BAYOU	T22N R4W SEC 1	08/30/64	33°48'N 90°36'W
POWELL	SUNFLOWER	40	16C	CLEVELAND	RULEVILLE	T21N R4W SEC. 11		33°40'N 90°34'W
17 CONSERV. EASEMENTS IN 3 COUNTIES		**1,554**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS								
NAME	**COUNTY**	**ACRES**	**Tract #**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**DATE ACQUIRED**	**LAT/LON**
HESTER, T. JR.	BOLIVAR	4		PACE	SHELBY	T24N R6W SEC. 3		33°59'N 90°48'W
POWELL	SUNFLOWER	1		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		
POWELL	SUNFLOWER	7		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		33°40'N 90°34'W
POWELL	SUNFLOWER	21		CLEVELAND	BOYER & SUNFLOWER	T20N R4W SEC. 32		33°31'N 90°37'W
POWELL	SUNFLOWER	24		CLEVELAND	BOYER	T19N R4W SEC. 5		33°31'N 90°37'W
4 FLOODPLAIN EASMENTS IN 2 COUNTIES		**57**	**ACRES**					

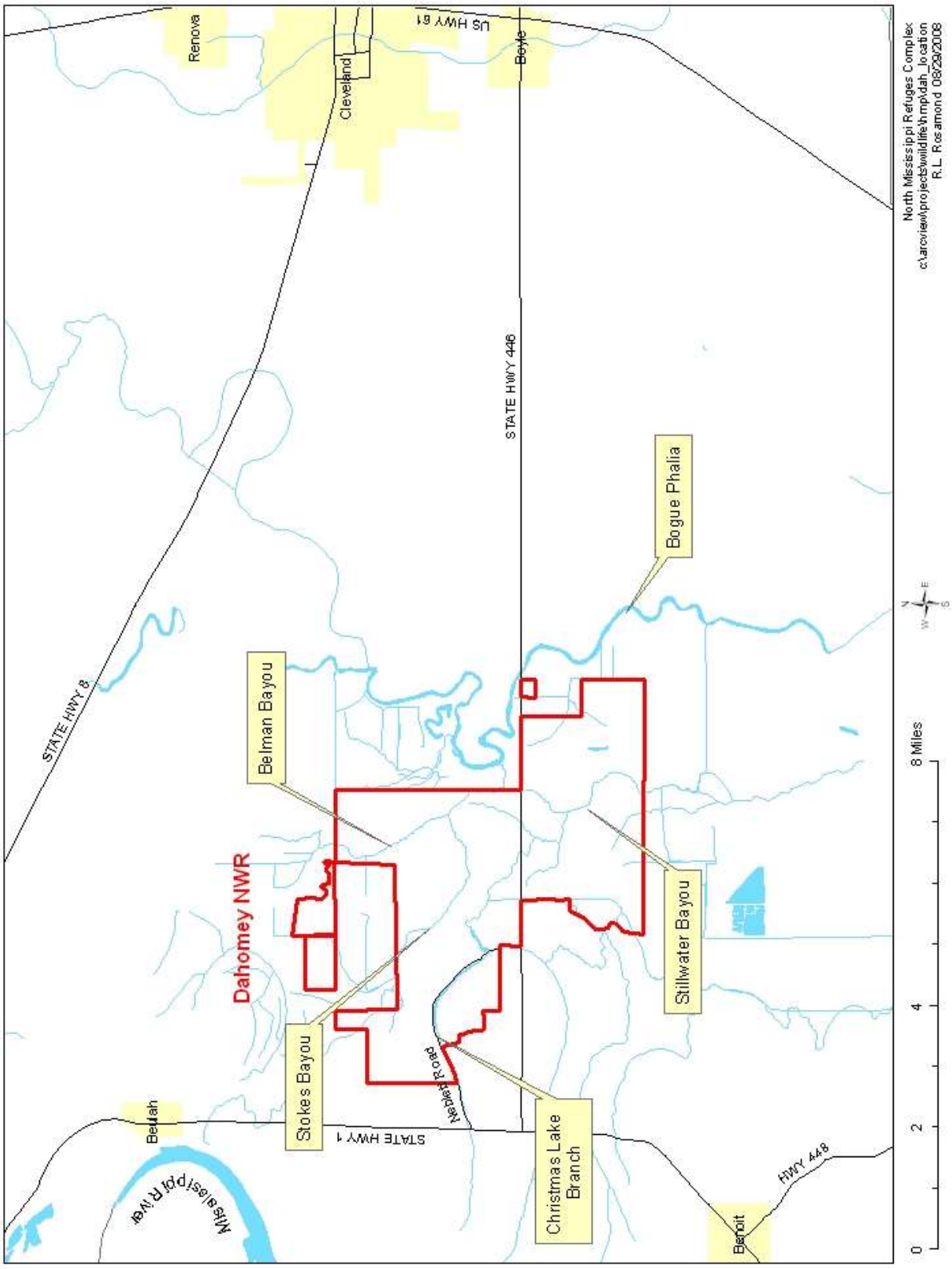

Figure 6: Location of Dahomey National Wildlife Refuge.

Soils in the region reflect the historical flooding of the area, composed mostly of soils formed from Mississippi River alluvium. Soil associations include Dowling-Alligator-Sharkey and Forestdale-Dundee-Bosket Associations. The dominant soils, Sharkey clays, are generally formed in historical slack-water areas, often some distance from stream and river channels, where flood waters slow and allow the clays to settle out. These soils are typically difficult to farm and often require artificial drainage to remove excess water. The area west of Christmas Lake Branch, an old meander, reflects the historical movement of the stream. It consists of alternating bands of Dowling clay, found in abandoned stream channels, and Dundee silty clay/clay loam, which was formed on old natural levees along the Mississippi River and small floodplain streams.

Current Condition

Dahomey NWR consists of 9,691 acres which includes approximately 370 acres of moist soil units (currently cultivated), 8,100 acres of bottomland forest (including approximately 200 acres of beaver sloughs and a 560-acre green tree reservoir), 1,000 acres of reforestation areas, and 240 acres of agricultural fields (Figure 7). In previous years, the moist soil units were farmed to provide increased food resources for wintering waterfowl. No farming occurred on Dahomey NWR in 2013.

Dahomey's 8,100 acres of bottomland hardwood forest provides important habitat for numerous species of migrant land birds such as Mississippi kite, summer tanager, ruby-throated hummingbird, wood thrush, hermit thrush, yellow-billed cuckoo, blue-gray gnatcatcher, great crested flycatcher, eastern wood-pewee, Acadian flycatcher, hooded warbler, prothonotary warbler, Swainson's warbler, painted bunting, white-eyed vireo, and red-eyed vireo. Wild turkey may be seen year round and six species of woodpeckers can be seen during the winter along with barred, great horned, screech, and short-eared owls. Dahomey has been identified by Partners in Flight as a priority area in the lower MAV for rare or declining land birds.

Although several forest compartments have been cut within the last 30 years, the majority of the compartments have had no timber harvest for 40 – 70 years. A timber cruise was conducted in April 2008 and, once the current condition of the forest has been assessed, the refuge plans to move forward with a forest management plan. Likewise, the reforestation areas contain stands of trees 8 – 15 years old and are likely to require some management activities in the near future.

Management Practices from Historic to Current Conditions

Dahomey NWR is located on the grounds of the old Dahomey Plantation founded in 1833 by F.G. Ellis and named after the homeland of his slaves. Much of the land west of the refuge was probably cleared for cultivation around this time. The land went through several owners until it was purchased by Allen Gray in 1936. The portion that became the refuge was known as the "Allen Gray Woods". The forested area was leased to the Benoit Hunting Club (beginning circa 1949) while the agricultural lands were leased to local farmers for cultivation. In 1990, the Nature Conservancy purchased the land to hold for the Service. Until the Service was able to purchase the lands, the agricultural fields were leased to farmers by the Conservancy, while the forested area was leased to the Service. Over the following several years, the Service purchased

the land from the Nature Conservancy. By 1993, the entire holdings of the Nature Conservancy (9,272 acres) had been purchased by the Service. In 1991, the State Highway Department transferred 162 acres to the Service as a mitigation bank. The most recent addition is 260 acres, leased from the Bolivar County school district until 2021, when it will be up for renewal.

At the time of purchase, the refuge contained approximately 1,390 acres of agricultural fields, with the bulk of the remaining acreage consisting of forested areas. The forested portion of the refuge (approximately 8,100 acres) was most likely originally cut in the 1940's to provide lumber for the war effort. The forest was allowed to regenerate naturally, but portions were cut in 1969, 1978, and 1983. Crops cultivated in the agricultural fields included soybeans, rice, and wheat. When the Service purchased the land, the acreage farmed was gradually reduced, with the agricultural lands being reforested or converted to moist soil units. Reforestation began in 1992 and was largely completed by 2000. In 1994, the Service began construction of four moist soil units, totaling 88 acres, north of MS Highway 446 (units 9 – 12). In 2001, Ducks Unlimited constructed levees around two agricultural fields south of the highway (units 30 and 40). These levees and the presence of a well on each unit, allow the areas to be flooded each winter.

In addition to the construction of moist soil units, the Service has installed water control structures in several ditches, including two that allow the flooding of the 560-acre green tree reservoir, located along Stillwater Bayou. This unit is typically flooded three of every five years to provide additional bottomland habitat during the winter months.

In February 1994, a devastating ice storm hit the refuge. According to the 1994 Annual Narrative, damage was "uniform and complete" with the majority of the trees losing their tops and major limbs. As a result of opening the canopy, the forest developed a dense understory layer which, when coupled with the downed timber, hindered entry into much of the forest for several years. This event has probably had the largest impact on refuge habitat since the Service acquired the property.

Hooded merganser at Dahomey NWR (L. Pace/Friends of Dahomey NWR)

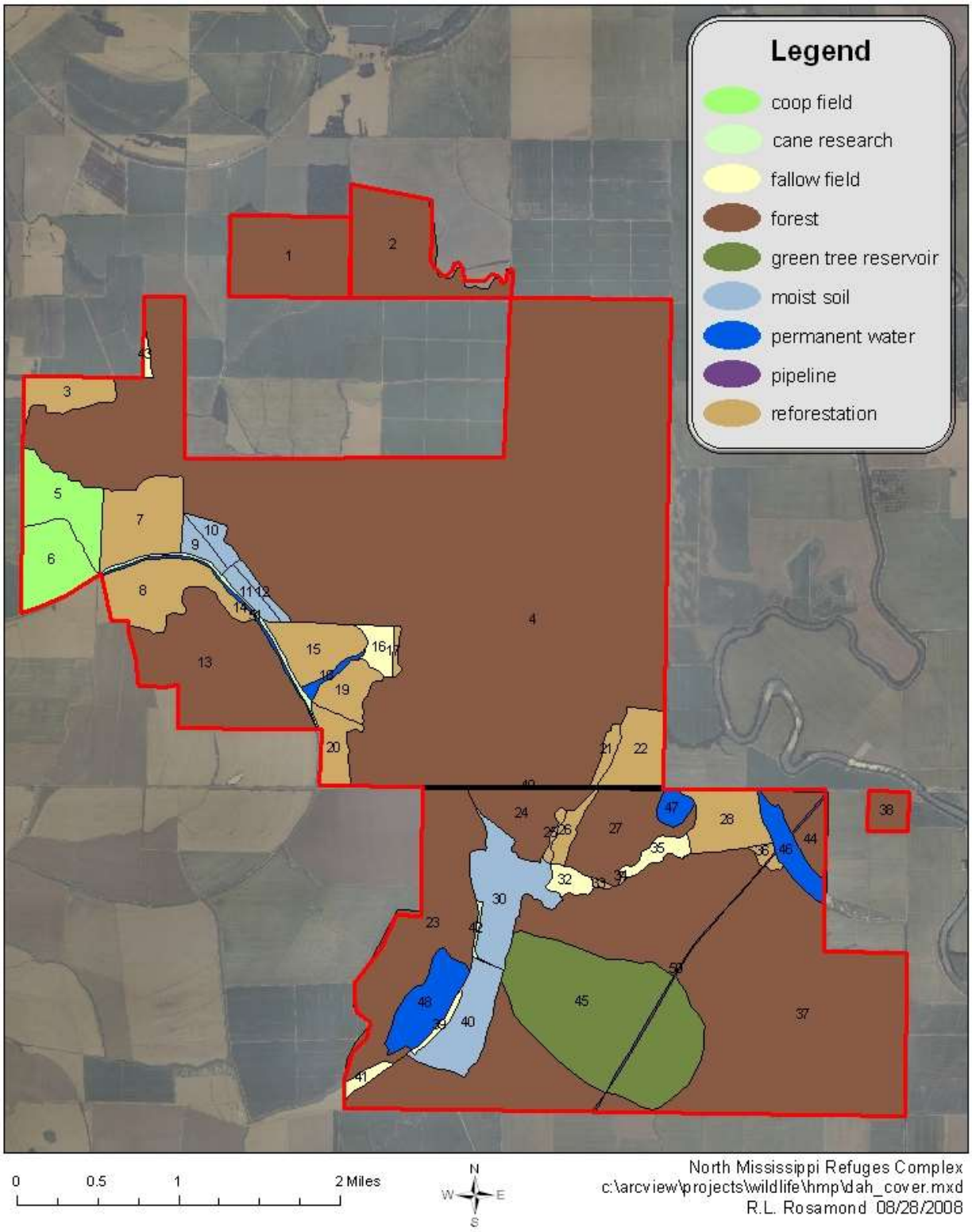

Figure 7: Cover types present on Dahomey National Wildlife Refuge.

Tallahatchie NWR

Tallahatchie National Wildlife Refuge was established in 1991 under the Migratory Bird Conservation Act and the Consolidated Farm and Rural Development Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds" and for conservation purposes. Specifically, the draft Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for Canada geese, mallard, pintail, blue-winged teal, and wood duck and production habitat for wood duck…" in accordance with the goals in the North American Waterfowl Management Plan. The work area for Tallahatchie NWR covers 10 counties and includes Tallahatchie NWR (4,199 acres), 15 FSA Fee-title properties (3,227 acres), 32 Conservation Easements (2,611 acres), and 9 Floodplain Easements (1,832 acres) (Table 4).

Location

Tallahatchie NWR is located in the delta region of Mississippi in Grenada and Tallahatchie Counties and is separated into two units: the main tract of the refuge totaling 3,642 acres and the 557-acre Walker Tract. The main unit of Tallahatchie is approximately two miles east of Philipp, Mississippi, on MS Highway 8. This tract is approximately 20 minutes from the Grenada Headquarters office, where staff is located (Figure 8). The Walker Tract is located approximately 3.5 miles northeast of the main tract along Brushy Creek. It is about 35 minutes from the Grenada Headquarters.

Historic Condition

Tallahatchie NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. The closest major water body is the Tallahatchie River, less than 1 mile west of the refuge. Historically, the area would have been subject to seasonal flooding, as the Tallahatchie River over-topped its banks and spread into the surrounding floodplain. Tippo Bayou, a tributary of the Tallahatchie River that passes through the refuge, would have also flooded seasonally. Likewise, the streams historically crossing the Walker Tract would have typically flooded that area. This seasonal flooding replenished nutrients in the bottomland area and allowed the formation of a bottomland hardwood forest, probably dominated by oaks, sweet gum, and sugarberry. The numerous sloughs and oxbows associated with Tippo Bayou were likely flooded most of the year and would have been dominated by cypress and tupelo. In dry years, these areas would have likely supported annual grasses and sedges, which would provide additional seeds for waterfowl in the winter.

Soils in this area reflect the hydrological history of the area, consisting primarily of Alligator-Forestdale and Alligator Associations, which are formed from alluvium from the Mississippi River. In general, these are poorly drained acidic soils that are generally too wet in the winter and spring to be suitable for residential and industrial development.

Table 4: Properties managed by Tallahatchie National Wildlife Refuge

REFUGE PROPERTIES

NAME	COUNTY	ACRES	ESTATE	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	YEAR ACQUIRED	LAT/LON
Walker Tract	TALLAHATCHIE	557	Fee Title	PHILIPP	CASCILLA	T23N R2E SEC. 21, 22 & 28	1991	30°50'N 90°05'W
John Whitten	GRENADA, TALLAHATCHIE	509	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC.13 & 24; T22N R2E SEC. 18	1992	33°45'N 90°08'W
John Hancock	GRENADA, TALLAHATCHIE	1,361	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 1, 12 & 13; T22N R2E SEC. 7 & 18	1992	33°47'N 90°08'W
Chicago Mills/DOT	TALLAHATCHIE	1,656	Fee Title	GREENWOOD, PHILIPP	MONEY, PHILIPP	T22N R1E SEC. 14, 22-27 & 34	1997	33°45'N 90°09'W
Sayle	TALLAHATCHIE	116	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 24	2003	33°45'N 90°08'W
TALLAHATCHIE NWR	**TOTAL ACRES (Fee Title only)**	**4,199**						

FmHA FEE TITLE PROPERTIES

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
GILLON	GRENADA	245	11.00	GRENADA	GRENADA	T22N R5E SEC. 21	07/14/93	33°45'N 89°46'W
GWIN	LEFLORE	343	16.00	SUMNER	GLENDORA	T22N R2W SEC. 13 & 24	02/19/92	33°45'N 90°21W
HENSON	LEFLORE	165	19.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	07/15/92	33°19'N 90°20'W
HENSON / A.C.O.E.	LEFLORE	275	no	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	?	33°19'N 90°20'W
KIMBROUGH, A.M.	LEFLORE	40	18.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 18	04/18/92	33°19'N 90°20'W
MILLICAN, H.	LEFLORE	2	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 30	03/05/92	33°23'N 90°14'W
MILLICAN, H.	LEFLORE	76	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 31	03/05/92	33°23'N 90°14'W
ROBERTSON	LEFLORE	655	14.00	GREENWOOD	GREENWOOD	T20N R1E SEC. 24 & 25	10/02/90	33°34'N 90°08W
SCOTT	LEFLORE	226	20.00	SUMNER	BROOKS	T22N R2W SEC. 8	09/01/94	33°47'N 90°25'W
SCOTT	LEFLORE	80	20.00	SUMNER	BROOKS	T22N R2W SEC. 3	09/01/94	33°48'N 90°23'W
SCOTT	LEFLORE	90	20.00	SUMNER	BROOKS	T22N R2W SEC. 9	09/01/94	33°47'N 90°24'W
JAMES	TALLAHATCHIE	160	10.00	PHILLIP	TIPPO	T24N R1E SEC. 36	10/11/90	33°54'N 90°08'W
PENNINGTON	TALLAHATCHIE	470	17.00	SUMNER	WEBB & VANCE	T25N R2W SEC.36		33°59'N 90°21'W
PENNINGTON	TALLAHATCHIE	360	17.00	TUTWILER	TUTWILER & VANCE	T25N R2W SEC. 26		34°00'N 90°22'W
PENNINGTON	TALLAHATCHIE	40	17.00	TUTWILER	VANCE	T25N R1W SEC. 2		34°03'N 90°15'W
15 FEE TITLE PROPERTIES IN 3 COUNTIES		**3,227**	**ACRES**					

FmHA CONSERVATION EASEMENTS

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
CALHOUN / DANCE	CARROLL	149	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31 & 32		33°17'N 89°47'W
CALHOUN / DANCE	CARROLL	57	10C	COILA	PEACHAHALA CREEK	T16N R5E SEC. 6		33°16'N 89°49'W
CALHOUN / DANCE	CARROLL	16	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31		33°17'N 89°48'W
STATEN	GRENADA	74	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20		33°45'N 90°06'W
HARRIS, W.L.	GRENADA	18	10C	PHILIPP	CASCILLA	T22N R2E SEC. 10		33°46'N 90°04'W
MOOR, R.B.	LEFLORE	11	15C	GREENWOOD	GREENWOOD	T19N R1W SEC. 12	11/29/90	33°31'N 90°14'W
MOOR, R.B.	LEFLORE	77	15C	GREENWOOD & SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31 'N 90°15'W
MOOR, R.B.	LEFLORE	17	15C	SCHLATER	SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31'N 90°15'W
MOOR, R.B.	LEFLORE	58	15C	SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 13	11/29/90	33°30'N 90°15'W
TRIBBLE	LEFLORE	12		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°12'W
TRIBBLE	LEFLORE	28		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°13'W
HAWKINS	LEFLORE	33	12C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 34	09/20/90	33°33'N 90°23'W
KOLLE, R	LEFLORE	109	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°35'N 90°22'W
UPCHURCH / PRESTRIDGE	LEFLORE	250	11C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 22, 26 & 27	10/01/90	33°34'N 90°23'W
SAUNDERS	LEFLORE	15	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
SAUNDERS	LEFLORE	45	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
DAVIS, HIRAM	TALLAHATCHIE	17	13C	PHILIPP	MONEY	T22N R1E SEC. 29	02/15/90	33°44'N 90°12'W
DENMAN	TALLAHATCHIE	8	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°59'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
HARRIS, W.L.	TALLA.,GRENA.	389	10C	PHILIPP	CASCILLA	T23N R2E SEC. 35 & 36; T22N R2E SEC. 1	04/28/89	33°48'N 90°03'W
HARRIS, W.L.	TALLAHATCHIE	40	10C	PHILIPP	CASCILLA	T23N R2E SEC. 34	04/28/89	33°48'N 90°04'W
MABUS	TALLAHATCHIE	42	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 26 & 27		34°00'N 90°10'W
MABUS	TALLAHATCHIE	416	16C	PHILLIP	PHILIPP & TIPPO	T24N R1E SEC. 36; T23N R1E SEC. 1 & 12		33°53'N 90°08'W
MABUS	TALLAHATCHIE	7	16C	PHILLIP	PHILIPP	T23N R1E SEC. 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	81	11C	CROWDER & TUTWILER	CROWDER	T25N R1W SEC. 12	11/02/90	34°02'N 90°14'W
MILAM	TALLAHATCHIE	3		PHILIPP	TIPPO	T24N R1E SEC. 11	10/22/98	33°57'N 90°09'W
MILAM	TALLAHATCHIE	40		PHILIPP	TIPPO	T24N R1E SEC. 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	35	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°57'N 90°06'W
HARRIS, W.L.	WEBS., CHOC.	515	10C	not available	EUPORA & SAPA	T19N R10E SEC. 9, 10 & 15	04/28/89	33°31'N 89°14'W
HOLLAND / BOONE	YALOBUSHA	37		GRENADA	SCOBEY	T25N R4E SEC.36		33°59'N 89°49'W
32 CONSERV. EASEMENTS IN 8 COUNTIES		**2,611**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
STATEN	GRENADA	190	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20	07/14/95	33°45'N 90°06'W
KOLLEE, R	LEFLORE	191	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°53'N 90°22'W
DAVIS, HIRAM	TALLAHATCHIE	240	13C	PHILIPP	MONEY	T22N R1E SEC. 29		33°44'N 90°13'W
DENMAN	TALLAHATCHIE	77	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
MABUS	TALLAHATCHIE	429	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 25 & 26		34°00'N 90°09'W
MABUS	TALLAHATCHIE	168	16C	PHILIPP	PHILIPP	T23N R1E SEC. 20 & 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	217	11C	CROWDER & TUTWILER	CROWDER & VANCE	T25N R1W SEC. 12	11/02/90	34°03'N 90°15'W
MILAM	TALLAHATCHIE	160		PHILIPP	TIPPO	T24N R1E SEC. 11 & 12	10/22/98	33°57'N 90°09W
SHOOK	TALLAHATCHIE	160	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°56'N 90°06'W
9 FLOODPLAIN EASEMENTS IN 3 COUNTIES		**1,832**	**ACRES**					

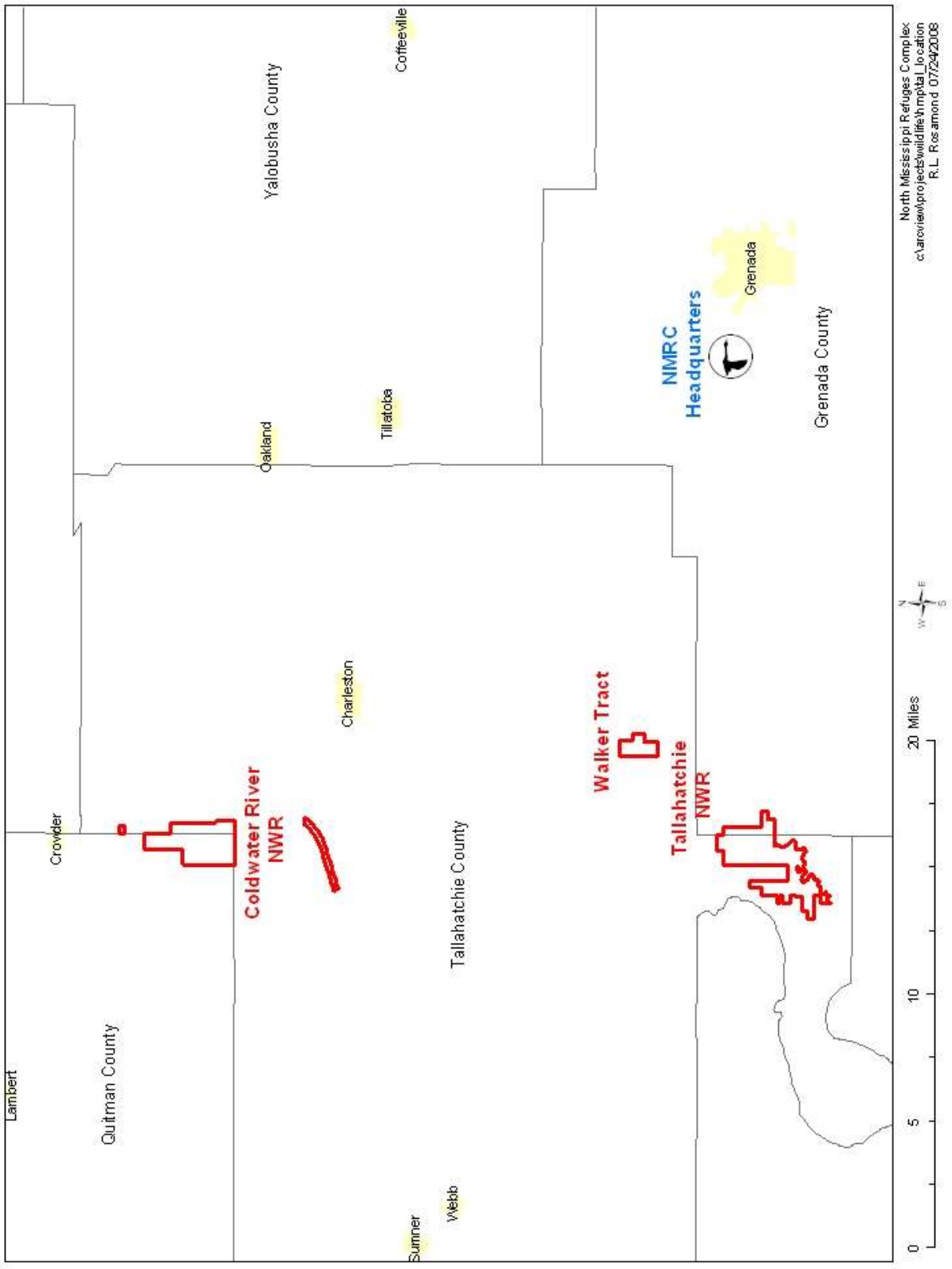

Figure 8: Location of Tallahatchie National Wildlife Refuge.

These soils also experience shrinking and cracking as they dry, and swell when wet. They are high in both natural fertility and available water capacity. However, drainage is necessary in most of these areas to reduce ponding and cultivation is frequently delayed in the springtime.

Current Condition

Tallahatchie NWR currently consists of 4,199 acres which includes 278 acres of moist soil units, 250 acres of fallow fields, 750 acres of aquatic habitats, 550 acres of agricultural fields, and approximately 1,700 acres of reforestation areas (Figure 9). Presently, the bulk of the management occurs on the moist soil units. In previous years the six units on the main part of Tallahatchie have alternated between fallow conditions, farming and moist soil management.

These units were originally transferred to the Service as part of a Mississippi Department of Transportation (MDOT) mitigation bank. The original management agreement for these units was focused on managing the units as permanent wetlands with emergent vegetation. However, NMRC is working to rewrite the original management plan to allow more traditional management and periodic (every 2 – 4 years) disturbance.

Over the last few years, the 250 acres of fallow fields have been mowed on a 2-year rotational basis to provide habitat for migratory birds, while no active management has occurred in most of the aquatic habitats or the reforestation areas. Long Branch, a 90-acre oxbow off of Tippo Bayou has been stocked with various species of sunfish, largemouth bass, and channel catfish to improve recreational fishing. The reforestation areas contain stands of trees 8 – 15 years old and are likely to require thinning in the near future. Approximately 700 acres of the agricultural lands are farmed in milo, corn, or soybeans each year.

The moist soil units, old oxbows and low-lying fields along Tippo Bayou flood almost every winter and hold large concentrations of waterfowl. Wood ducks, eastern screech owls, barred owls, great-horned owls, loggerhead shrikes, and red-tailed hawks are common year-round residents. Blue grosbeaks, dickcissels, and indigo and painted buntings can be seen during summer. The refuge also supports a healthy deer population.

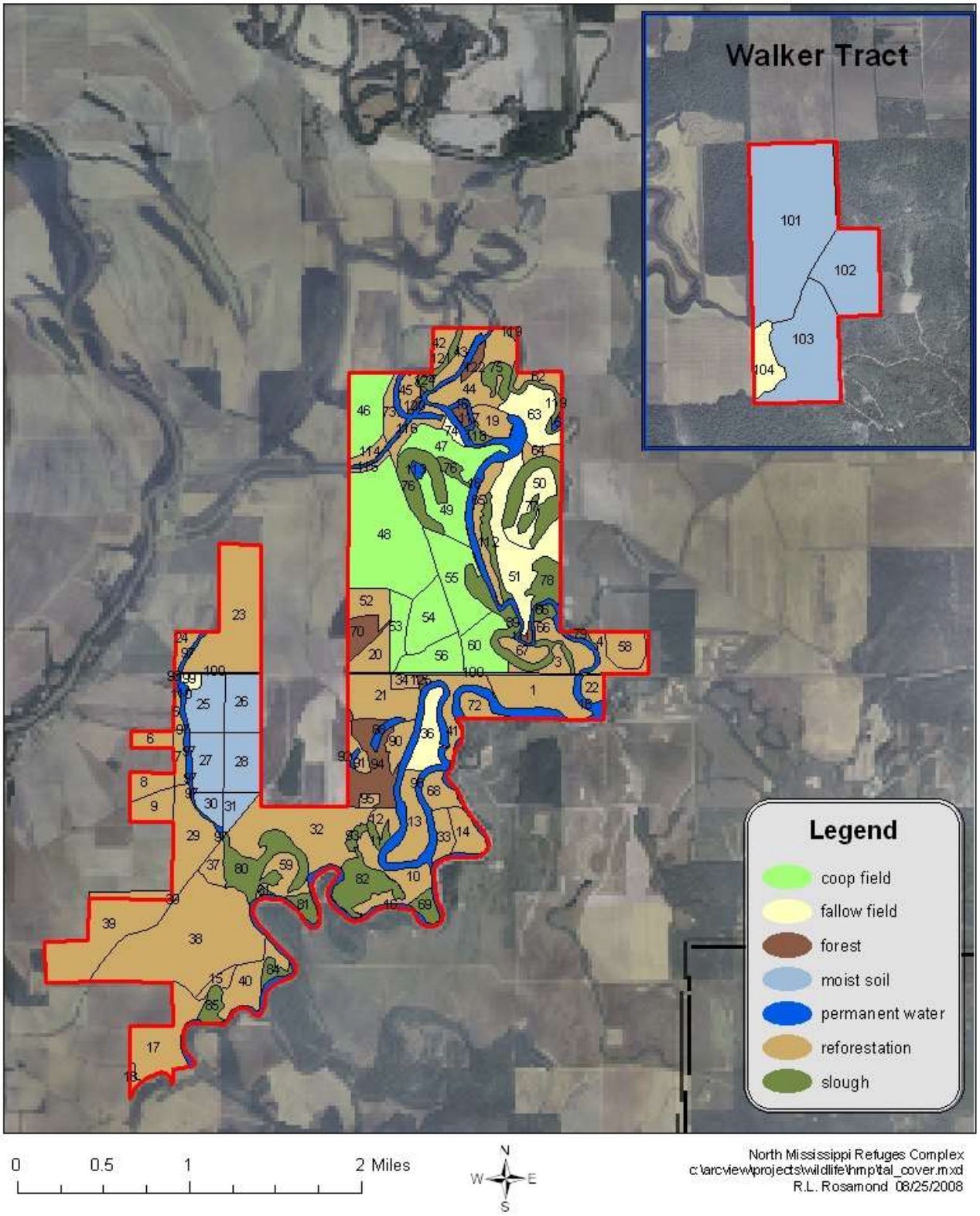

Figure 9: Cover types present on Tallahatchie National Wildlife Refuge.

Management Practices from Historic to Current Conditions

The first land acquired for Tallahatchie NWR was the 557-acre Walker Tract. This tract was originally purchased by the Ducks Unlimited in 1990 developed jointly by the Service and DU under a DU MARSH Project, and then repurchased by the Service in 1991. After being cleared, the property had been farmed in cotton, then rice and contained 3 wells, 3 water control structures, and an extensive levee system. The work completed by DU and the Service involved renovating the levee, raising the low spots, installing emergency spillways, and installing an additional water control structure.

In 1992, two more tracts were added to Tallahatchie NWR. These included 1,138 acres purchased from John Hancock Insurance Company and 509 acres purchased from John Whitten. The majority of this land was located north of Highway 8, with approximately 400 acres located south of the highway in the vicinity of Tippo Bayou and Long Branch. These tracts were composed mainly of cropland and led to the initiation of cooperative farming on Tallahatchie NWR.

Begun in 1993, cooperative farming encompassed about 1,000 acres per year for the first several years. Crops were primarily soybeans, rice, milo, and corn, with all the corn planted contributing to the refuge share. During this time frame, the farmers' "rent" consisted of either crops left standing on 25% of the acreage farmed, or a combination of standing crops and in-kind services. These services included building and repairing levees, replacing water control structures, installing water distribution pipes, and pumping water for fall and winter waterfowl, among other things.

In 1997, the Refuge acquired an additional 1,656 from Mississippi Department of Transportation (MDOT) as part of a mitigation bank. This property was primarily located south of MS Highway 8, contiguous with the existing main tract of the Refuge. As part of the acquisition agreement, agriculture was to be phased out on this property over the following three years. There was a farming agreement currently in place that was gradually phased out over the course of three years. As a result, the refuge nearly doubled in size and the acreage in agriculture also doubled immediately following this acquisition. Major crops remained the same.

Beginning with the acquisition in 1997, the Refuge began removing acreage from agriculture in order to reforest areas. Prior to this, any agricultural lands that weren't farmed were primarily maintained as fallow fields or managed for moist soil vegetation. Over a 4-year period, nearly 1,300 acres were reforested on Tallahatchie refuge. An additional 450 acres, primarily in smaller or isolated fields, were allowed to reforest through natural regeneration with some supplemental plantings.

The most recent acquisition was a 116-acre parcel purchased from Ike Sayle in 2003. This tract was an inholding within the main portion of the Refuge and consisted of forested habitat and grasslands enrolled in CRP. The grasslands have been allowed to regenerate naturally into hardwoods.

Climate Data

Climate data is obtained for Greenwood, Mississippi a centralized location for the complex. Table 5 depicts the climate data acquired using the NASA Online Weather Data system entitled NOWData (www.weather.gov/climate). The average summer temperature was higher compared to the 30 year norm. Additionally, the precipitation was lower, sometimes less than half of the 30 year norm, especially in January through March, May, August, and October. Only March, July, August, September and December experienced higher values in relation to the 30 year norm.

Table 5: 2012 weather information obtained from the National Weather Service (www.weather.gov/climate/) for Greenwood Leflore, MS. Numbers in parenthesis represent the 30 year norm (1981 – 2010).

Month	**Average High Temp. (F) (30 year norm)**	**Average Low Temp. (F) (30 year norm)**	**Average Temp. (F) (30 year norm)**	**Total Precipitation (in.) (30 year norm)**
January	57.3 (53.6)	38.5 (34.3)	47.9 (43.9)	8.64 (4.56)
February	57.3 (58.3)	35.6 (37.8)	46.5 (48.1)	3.82 (4.48)
March	60.5 (67.0)	37.5 (45.1)	49.0 (56.1)	5.82 (4.31)
April	73.8 (75.2)	50.4 (52.6)	62.1 (63.9)	5.85 (5.10)
May	79.4 (82.9)	58.6 (61.9)	69.0 (72.4)	6.28 (5.06)
June	89.4 (89.2)	68.3 (68.7)	78.8 (79.0)	3.04 (3.90)
July	89.3 (91.8)	68.5 (70.8)	78.9 (81.3)	2.27 (3.60)
August	91.9 (92.2)	69.1 (69.7)	80.5 (81.0)	2.53 (2.83)
September	89.2 (86.9)	64.3 (62.6)	76.7 (74.7)	8.09 (3.66)
October	75.6 (76.9)	53.8 (51.6)	64.7 (64.3)	3.37 (3.87)
November	61.4 (66.2)	38.4 (42.5)	49.9 (54.3)	3.99 (4.52)
December	54.0 (56.2)	34.7 (35.5)	44.4 (45.9)	4.69 (5.65)

Flooding at Tallahatchie NWR, January 2013 (H. Jones/USFWS)

1

Monitoring and Studies

1a. Surveys and Censuses

The following are significant surveys and censuses that took place during 2013 on lands administered by the NMRC.

Christmas Bird Count
WB Rosamond, RM Breland, TE Richardson, Friends of Dahomey, and multiple volunteers participated in the Dahomey-Great River Road Christmas Bird Count. The count circle includes all areas within a 7.5-mile radius circle, including nearly all of Dahomey. For the 2013 count, 14 people participated, logging in 46.5 "party hours" of surveying and covering a total of 266 miles of roads and trails. A total of 20,247 individuals of 93 species were found on the day of the count. WB Rosamond serves as coordinator and compiler for this count.

Breeding bird survey
WB Rosamond conducted three bird surveys along Breeding Bird Survey (BBS) routes in June. These routes are part of a nationwide survey geared toward detecting changes in bird populations for species breeding in the United States. A total of 705 individuals of 46 species were detected on the Tippo route. (This route passes through the north side of Tallahatchie NWR, before moving through private land.) A total of 642 individuals of 48 species were detected on the Tallahatchie route. (This route runs along the east side of Coldwater River NWR, before moving through private land.) A total of 723 individuals of 53 species were detected on the Dahomey route. (This route was established in 2012 and covers an area from Dahomey NWR to the Mississippi mainline levee.)

Dahomey bird survey – priority forest birds
WB Rosamond conducted 6 surveys from April 30 to June 12 on Dahomey National Wildlife Refuge for priority forest bird species. Counts began at or near sunrise and were concluded by 10:30 a.m. each morning. Ten points, located approximately 250 m apart and at least 250 m from any forest edge were surveyed each day. These counts were designed to target priority forest bird species—those species occurring in forest habitat ranked by Partners in Flight (PIF) as 22 or above*.

A total of 101 individuals of 5 priority species have been detected during 6 surveys (60 points surveyed). Species recorded include prothonotary warbler, northern parula, yellow-billed cuckoo, wood thrush, and white-eyed vireo. Additionally, painted buntings and orchard orioles have been regularly observed in edge habitat during this same time frame. Use by the remaining priority species appears to be rare if at all. Historical data show Swainson's warblers were reported in 1992 and 1999. Red-headed woodpeckers were observed by WB Rosamond during the breeding bird survey this year, foraging in snags along the property boundary.

*Priority bird species for the Mississippi Alluvial Valley include: Swainson's warbler, Swallow-tailed kite, cerulean warbler, prothonotary warbler, painted bunting, red-headed woodpecker, Bell's vireo, northern parula, worm-eating warbler, Kentucky warbler, orchard oriole, yellow-billed cuckoo, wood thrush, and white-eyed vireo.

Mid-winter counts

WB Rosamond conducted mid-winter counts on all three Refuges during the second week of January. Temperatures during the survey week were varied with daytime temperatures ranging from the mid-30's – 60 F, with variable clouds and some rain. Table 6 below summarizes the results of all three surveys.

Table 6: Mid-winter survey results for Coldwater River, Dahomey, and Tallahatchie NWR's.

Refuge	**Duration (hrs:mins)**	**No. Ducks**	**No. Geese**
Coldwater River	4:12	5,537	855
Dahomey	2:12	845	1
Tallahatchie	1:45	3,654	0

The majority of birds on Coldwater River NWR were on the ponds, with only about 10% on other units. Numbers of ducks on individual ponds ranged from 0 to 567. The majority of the birds on Dahomey were on the flooded agricultural fields (DU fields). Approximately 180 acres of un-harvested corn were left by the farmer as payment, and the area was used heavily throughout the winter. Vegetation was very dense and not all birds flushed so it's likely that the total number of birds present was higher than the number reported. The majority of the birds recorded on Tallahatchie NWR were in the flooded milo on the north side of the refuge (closed to hunting). Due to the rain, the Walker Tract and Tippo Bayou were not surveyed. It's likely that numbers were significantly higher than what was detected. Nearly two-thirds of the geese observed were greater white-fronted geese.

Mallards landing in flooded corn at Dahomey NWR. (B. Rosamond/USFWS)

Eagle nest monitoring

WB Rosamond monitored three eagle nests on private lands during the 2013 nesting season. All three sites fledged young this year for a total of 6 fledglings. This information is sent to the Museum of Natural Sciences in Jackson, who serves as the state repository for eagle nesting data.

Waterfowl survey

WB Rosamond conducted waterfowl surveys at Coldwater River NWR one to two times per month from mid-October 2012 – mid-February 2013. Surveys were conducted from Levee Road and perimeter levees surrounding the ponds. Areas surveyed included the Warwick Tract (from Levee Road), the borrow pits (from Levee Road), the agricultural fields (when flooded) and the ponds (from Levee Road and selected pond levees). As in previous years, visibility was limited in some units due to heavy vegetation. Results are shown in Table 7.

Overall, counts were good for 2013, with duck numbers peaking in mid-December with almost 10,000 ducks on the ponds. This was slightly lower than the previous two years which had peaked at 13,000 to 15,000 ducks. A large flock (estimated 10,000 birds) of snow geese was observed on the Refuge during one of the surveys. These flocks are in the vicinity of Coldwater throughout the winter and periodically visit the Refuge. In addition to the snow geese, white-fronted geese were also observed on the Refuge, peaking at approximately 2,100 birds. Ponds on the Refuge were flooded a little earlier this year, to provide habitat for migrants during the drought. As in previous years, number of birds observed on the refuge dropped soon after the close of hunting season. This is most likely due to ducks dispersing to other areas once hunting pressure is removed.

Ducks at Coldwater River NWR. (B. Rosamond/USFWS)

Table 7: Summary of species observed during waterfowl surveys at Coldwater River NWR.

	Unit	Total ducks	Total geese	Total coots	Unknown /Misc. ducks	Mallards	Gadwall	Northern pintail	Northern shoveler	American wigeon	Am. green-winged teal	Wood duck	Scaup/ ring-necked duck	Bufflehead	Ruddy duck	Hooded Merganser	Greater white-fronted goose	Lesser snow goose
10/18/2012	Ponds	1739	0	380	288	45	58	10	49	4	1285	0	0	0	0	0	0	0
	Borrow pits	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**1739**	**0**	**380**	288	45	58	10	49	4	1285	0	0	0	0	0	0	0
10/31/2012	Ponds	5728	650	773	24	1771	1593	176	351	151	1628	0	34	0	0	0	650	0
	Borrow pits	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Total	**5739**	**650**	**773**	24	1781	1593	176	351	151	1628	0	34	0	1	0	650	0
11/29/2012	Ponds	8109	11131	89	10	3756	1062	252	580	39	2398	0	11	1	0	0	657	10474
	Borrow pits	37	0	0	0	18	12	0	2	0	2	0	3	0	0	0	0	0
	Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**8146**	**11131**	**89**	10	3774	1074	252	582	39	2400	0	14	1	0	0	657	10474
12/11/2012	Ponds	9874	3278	119	750	3558	1141	162	1243	0	2998	0	3	13	6	0	2172	1106
	Borrow pits	81	0	0	0	20	56	0	0	0	0	0	5	0	0	0	0	0
	Warwick	2	0	0	0	0	0	0	0	0	0	0	2	0	0	8	0	0
	Total	**9957**	**3278**	**119**	750	3578	1197	162	1243	0	2998	0	10	13	6	8	2172	1106
1/8/2013	Ponds	4969	535	396	502	2243	886	133	517	30	525	2	4	20	107	0	526	9
	Borrow pits	122	0	2	0	2	84	0	22	0	0	0	14	0	0	0	0	0
	Warwick	46	0	0	0	37	6	0	3	0	0	0	0	0	0	5	0	0
	Farm fields	400	320	0	0	0	0	20	30	350	0	0	0	0	0	0	20	300
	Total	**5537**	**855**	**398**	502	2282	976	153	572	380	525	2	18	20	107	5	546	309
1/22/2013	Ponds	2511	1285	451	288	519	619	14	404	24	472	0	48	0	123	0	1283	2
	Borrow pits	13	0	0	0	6	3	0	4	0	0	0	0	0	0	2	0	0
	Warwick	23	0	0	0	23	0	0	0	0	0	0	0	0	0	5	0	0
	Farm fields	350	0	0	350	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**2897**	**1285**	**451**	638	548	622	14	408	24	472	0	48	0	123	7	1283	2
2/11/2013	Ponds	1728	231	1106	2	90	141	0	1051	37	61	0	184	26	136	6	231	0
	Borrow pits	30	0	31	0	0	21	0	9	0	0	0	0	0	0	0	0	0
	Warwick	7	0	6	0	4	0	0	0	0	0	2	1	0	0	0	0	0
	Total	**1765**	**231**	**1143**	2	94	162	0	1060	37	61	2	185	26	136	6	231	0

Acoustical monitoring for bats

WB Rosamond, TE Richardson, and RM Breland conducted acoustical monitoring for bats on Coldwater River, Dahomey, and Tallahatchie National Wildlife Refuges. Routes for Coldwater River and Dahomey followed the existing breeding bird survey routes for those Refuges with slight modifications. The Tallahatchie route began at the southern end of South Entrance Road, proceeded through the southern half of the Refuge, then followed the existing breeding bird survey route. Routes ranged in length from 25.5 – 30.0 miles. Routes were run three times at Dahomey and Coldwater and six times at Tallahatchie using an Anabat detector affixed to the roof of a vehicle travelling between 15 and 20 miles per hour. Data was downloaded from the detector and sent to a Sharepoint site for analysis and species identification. This is part of a region-wide effort to document bat species' presence on refuges. Initial analysis looked at the number of bat calls detected on each route and the species present. Table 8 (below) summarizes the number of calls recorded and the number of calls per mile (for standardization) for each run on each refuge. In addition to the standardized routes surveyed, WB Rosamond also recorded bat calls while conducting frog surveys. However, the data was recorded at discrete survey points, rather than along a transect and are not included in this analysis.

Table 8: Summary of results for bat acoustical monitoring on Coldwater River, Dahomey, and Tallahatchie NWR's. Numbers listed under each run represent the number of calls detected and the adjusted value of number of calls detected per mile (in parentheses).

	Route length (miles)	**Run 1** No. calls (no. calls/mile)	**Run 2** No. calls (no. calls/mile)	**Run 3** No. calls (no. calls/mile)	**Average** No. calls (no. calls/mile)
Coldwater River	25.5	12 (0.47)	17 (0.67)	41 (1.61)	**23 (0.92)**
Dahomey	27.7	6 (0.22)	25 (0.90)	20 (0.72)	**17 (0.61)**
Tallahatchie (1–3)	30.0	18 (0.60)	29 (0.97)	36 (1.20)	
Tallahatchie (4–6)		30 (1.00)	59 (1.97)	50 (1.67)	**37 (1.23)**

Bat mistnetting

WB Rosamond, RM Breland, SCA interns Whiting and Blomberg, and volunteers conducted a bat mistnetting project on Tallahatchie and Dahomey NWR's. The goal of the project was to verify species present on each Refuge. On Dahomey NWR, netting occurred from April 17 – May 28, approximately once a week. A total of six bats were captured: 5 red bats and 1 evening bat. Netting primarily occurred on hiking trails, previously unsampled. On Tallahatchie NWR, netting occurred on June 20. Three southeastern myotis were captured on Perkins Ridge Road.

Calling frog survey

WB Rosamond conducted frog surveys on Coldwater River, Dahomey, and Tallahatchie NWR's following the protocol established by the North American Amphibian Monitoring Program (NAAMP). Additionally, she conducted surveys along one state route, following the same protocol. Three surveys were conducted on each route, corresponding to different calling periods (early spring, late spring/early summer, summer). Table 9 below summarizes the results of these surveys.

Table 9: Species detected during calling frog surveys on Coldwater River and Tallahatchie NWR's and the Zilpha Creek state route.

Species	Coldwater River NWR	Dahomey NWR	Tallahatchie NWR	Zilpha Creek (state route)
Bullfrog	X	X	X	X
Bronze frog	X	X	X	X
So. leopard frog	X	X	X	X
Green treefrog	X	X	X	X
Cope's gray treefrog				X
Gray treefrog	X			X
Gray treefrog complex	X	X	X	X
Bird-voiced treefrog				X
Barking treefrog				X
Spring peeper	X	X	X	X
Northern cricketfrog	X			
Cricketfrog complex	X	X	X	X
Fowler's toad	X	X	X	X
Narrowmouth toad	X	X		X

Green tree frog (left) and marbled salamander (right), Dahomey NWR (A. Breland/USFWS)

Aquatic mussel surveys

WB Rosamond, RM Breland and I&M Terrestrial Ecologist Richardson completed a mussel survey in Belman's Bayou on Dahomey NWR. The survey lasted approximately four hours and a total of nine species were collected and identified. Of those, four species were new records for the Refuge. The area covered was within Belman's Bayou from the junction with Headquarters Road (at the junction of Headquarters Road and Bear Road) to the agricultural fields at the refuge boundary, a distance of approximately 0.8 miles.

Additional mussels were collected from Tallahatchie NWR by students from Winona High School during a field trip. They collected a bluefer (*Potamilus* purpuratus) for the first time from

the Refuge. Identification of all mussel species is confirmed by Wendell Haag with the U.S. Forest Service (Oxford) and specimens are sent to the Mississippi Museum of Natural Science to get added to their collection.

Mussel species detected to date on Dahomey and Tallahatchie NWR's are listed in Table 10 below.

Table 10: Mussel species known to occur on Dahomey and Tallahatchie NWR's.

Common name	Scientific name	Dahomey	Tallahatchie
Flat floater	*Anodonta suborbiculata*		X
Threeridge	*Amblema plicata*	X	
Yellow sandshell	*Lampsilis teres*	X	X
Fragile papershell	*Leptodea fragilis*		X
Pondmussel	*Ligumia subrostrata*	X	X
Bleufer	*Potamilus purpuratus*		X
Giant floater	*Pyganodon grandis*	X	X
Mapleleaf	*Quadrula sp.*		X
Wartyback	*Quadrula nodulata*	X	
Mapleleaf	*Quadrula quadrula*	X	
Texas lilliput	*Toxolasma texasense*	X	X
Tapered pondhorn	*Uniomerus declivis*	X	
Paper pondshell	*Utterbackia imbecillus*		X
Asian clam	*Corbicula fluminea*	X	
Fingernail clams	*Sphaeriidae*		X

Breland and Richardson conducting a mussel search in Belman's Bayou, Dahomey NWR (top) and a selection of mussels collected during the search (bottom). Species shown include threeridge (far right and far left), tapered pondhorn (center), and Asian clams (top center) (photos by B. Rosamond/USFWS)

Amphibian and reptile census

Dr. Eric Blackwell and students from his Herpetology class, conducted an amphibian and reptile survey of Dahomey during the spring of 2013. Species detected were photo vouchered (where possible) and a species list and photos were provided to WB Rosamond. The provided the first record of a small-mouthed salamander on Dahomey and this information was sent on to the Mississippi Museum of Natural Sciences to add to their database. Table 11 below summarizes their captures.

Table 11: Amphibian and reptile species encountered by the Delta State University Herpetology class, spring 2013.

Common name	Scientific name	Photo voucher?
Cricket Frog	*Acris spp.*	Yes, insufficient to differentiate species
American Toad	*Anaxyrus americanus*	Yes
Eastern Narrow-mouthed Toad	*Gastrophryne carolinensis*	Yes
Green Treefrog	*Hyla cinerea*	Yes
Gray Treefrog spp.	*Hyla chrysoscelis/versicolor*	Yes, insufficient to differentiate species
American Bullfrog	*Lithobates catesbeianus*	Yes
Southern Leopard Frog	*L. sphenocephalus*	Yes
Spring Peeper	*Pseudacris crucifer*	No, vocalization only
Marbled salamander	*Ambystoma opacum*	Yes
Mole salamander	*A. talpoideum*	No
Small-mouthed Salamander	*A. texanum*	Yes
Common Five-lined Skink	*Plestiodon faciatus*	Yes
Little Brown Skink	*Scincella lateralis*	Yes
Copperhead	*Agkistrodon contortrix*	Yes
Cottonmouth	*A. piscivorus*	Yes
North American Racer	*Coluber constrictor*	Yes
Central Rat Snake	*Pantherophis spiloides*	Yes
Red-bellied Snake	*Storeria occipitomaculata*	Yes
Western Ribbon Snake	*Thamnophis proximus*	Yes
Eastern Garter Snake	*T. sirtalis*	No
Eastern Box Turtle	*Terapene carolina*	No, cannot determine subspecies
Pond Slider	*Trachemys scripta*	Yes, insufficient to differentiate subspecies

1b. Studies and Investigations

The North Mississippi Refuges Complex forms partnerships with state agencies, universities, and other organizations to aid in conducting studies and investigations on Refuge properties. The following are some significant activities that took place in 2013.

Dr. Ted Leininger, a researcher from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Stoneville, collected spicebush fruits from Dahomey in the fall of 2012, for chemical ecology research. These plant tissues were used by Dr. Mark Hamann from the Department of Pharmacognosy at the University of Mississippi to produce endophytic fungi that were found to have antimalarial activity. Dr. Leininger also collected muscadine leaves, stems and roots from 2 young vines from Dahomey in the fall of 2013 which will be analyzed by Dr. Hamann to assay endophyte populations contained in tissue and sap.

Dr. Tracy Hawkins, a researcher from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Starkville, began a long-term study investigating the dynamics of acorn production for bottomland red oak species. She will be collecting acorns from Dahomey and measuring such factors as productivity, predation, and variability of Nuttall and willow oaks over the next 10 or more years. Fall 2013 was her second field season.

Dr. Nathan Schiff collected insects from Dahomey NWR for several studies. In the spring, several species of sawflies (Hymenopter: Symphyta) were collected in a Malaise trap for a long-term project using DNA barcodes to identify sawfly larvae of North America (with Dr. David Smith at the Smithsonian). In May and June specimens of Mallodon dasystomus (Coleoptera) were collected at light trap for sex pheromone studies with Dr. Matt Ginzel (Purdue) and Dr. Jocelyn Millar (U.C. Riverside). In the fall, there were 6 visits to develop trapping methods for Panorpa nuptialis (Mecoptera) with Dr. Wes Bicha (Oakridge).

Dr. Jane Carlson and **Chris Adams** from Nicholls State University collected samples of *Hibiscus laevis, H. moscheutos* and a hybrid from Tallahatchie NWR in summer 2013. These samples will be used in a study of genetics of these two species.

Dr. Susie Adams and research assistant **Zanethia Choice** of the US Forest Service Research Center in Oxford, MS were issued a special use permit to sample collect crayfish on Dahomey NWR to ascertain if individuals previously identified as vernal crayfish (*Procambarus viaeviridis*) are actually a different species and not just a population with morphological variation. Trapping began in November 2013 and will continue through spring 2014.

Dr. Eric Blackwell of Delta State University received a special use permit to trap, PIT tag, release and recapture aquatic salamanders (western lesser siren, *Siren i. intermedia,* and three-toed amphiuma, *Amphiuma tridactylum*) as part of a class lab. The class captured two amphiuma and two lesser sirens. One of the amphiuma was captured in Christmas Lake Branch and the other amphiuma and lesser sirens were captured in Happy Hollow lake.

Kenny Jones and **Ryan Fulgham**, undergraduate students of Dr. Baghai-Riding from Delta State University, conducted water and soil testing of several vernal pool areas on Dahomey. Specifically they tested for the presence of atrazine, while also collecting data on basic parameters such as pH, soluble salts, water depth, and turbidity. No atrazine was detected.

Joe Lancaster, a doctoral student at Mississippi State University began his research studying habitat use and movements by female mallards in the north Delta region of Mississippi. He is attaching radio transmitters to female mallards and tracking their movements. Through January 10, 2014, he and his team have captured and banded 138 mallards, including 43 females that were equipped with a VHF backpack transmitter. They also captured and banded 13 ringneck ducks, 4 green winged teal, 3 gadwall, and 1 lesser scaup.

He has tracked radio-marked females daily and most nights since capture. Notable movements have occurred to Holcomb, Tutwiler, and Matthews Brake NWR. He has recovered 4 mortalities of which 2 were natural and 2 were hunter harvests. One female was harvested approximately 1 mile east of Coldwater River NWR, and the second was harvested at Matthews Brake NWR. Of the natural mortalities, one occurred 1 mile east of CWR NWR and one occurred on CWR NWR.

They will continue to monitor radio-marked females until their departure from the study area (typically late March).

Graduate student Joe Lancaster attaches a band (left) and radio transmitter harness to a hen mallard as part of his dissertation research looking at habitat use by hen mallards. (B. Rosamond/USFWS)

Daniel Schwarz and **Ricky Campbell** from the Private John Allen National Fish Hatchery (PJANFH) began a telemetry study of paddlefish on Tippo Bayou to determine seasonal movements of paddlefish throughout Tippo, as well as to determine if the Corps of Engineers structure on the north side of the refuge was a barrier to movement of these fish. Nineteen fish were captured between February 28 and March 21, 2013, and fitted with transmitters. VR2W receivers were strategically placed along the length of Tippo Bayou. Data were retrieved monthly and analyzed for movements.

To date, it appears that fish are able to travel around the Corps of Engineers structure during high flow periods and frequently do during their spawning season. Following spawning, paddlefish travel further south to Six Mile Lake and possible further into the Yalobusha River or even the Mississippi River.

TE Richardson holding a paddlefish captured on Tippo Bayou. (B. Rosamond/USFWS)

Refuge staff constructed 11 exclosures on Dahomey NWR to assess long-term impacts of feral hog disturbance to native vegetation. Exclosures and treatment plots measuring 30' x 30' were built between May 22 - 28, 2013 by RM Breland, EEOs Roby and Perry, SCA's Whiting and Blomberg, and volunteer Coleman. Sites were in mature and regenerating hardwood forests and placed off of roads and trails to balance accessibility with disturbance from road traffic. Vegetation sampling began in 2013 and will continue annually. Additionally, sites will be available for sampling by classes at Delta State University.

Baseline vegetation data were collected by WB Rosamond, RM Breland, and SCA interns Whiting and Blomberg between June 24 – July 1. Data collection included a reference photograph of each exclosure and control; percent cover of leaf litter, bare ground, and woody and herbaceous vegetation according to genus or species; and percent canopy cover. Also, stem counts were conducted in each quarter of the treatments and controls, recording species and, for those trees over 2"diameter at breast height (dbh), the dbh of each woody stem.

Baseline data collection within feral hog exclosures at Dahomey NWR, Summer 2013 (A. Breland/USFWS)

2

Habitat Restoration

2a. Wetland restoration: On-refuge

EEO Riales and Leachman replaced the water control structures at the southern end of the soybean fields and the southeast corner of the rice fields along Bear Road at Dahomey NWR. This project increased the capacity of these fields to hold water for wintering waterfowl.

2b. Upland restoration: On-refuge

Nothing to report

2c. Wetland restoration: Off-refuge

FOS Jones assisted in the Buttahatchie River bank stabilization project in July 2013. (*Also see section 5a, Interagency Coordination)*

Before (left) and after (right) Buttahatchie bank stabilization (H. Jones/USFWS)

FOS Jones assisted in the removal of dams along the Uwharrie River near Troy, North Carolina in September 2013. Multiple agencies, non-profit organizations, and private landowners teamed up to restore aquatic life passage on the Uwharrie River by removing the 12 foot high and 200 foot long Lassiter Mill Dam located in Randolph County, NC. The river is recognized as a Significant Natural Heritage Area of "Very High" significance by the North Carolina Natural Heritage Program for its biological diversity containing habitat for sixteen aquatic species of fish, mussels and salamanders that are considered rare, threatened or endangered. Removing Lassiter Mill Dam opened up an additional 14.6 miles of potential spawning habitat for fish on the main stem of the river and an overall total of 189 river miles, including tributary streams to the river. (*Also see section 5a, Interagency Coordination)*

Lassiter dam removal project in Troy, North Carolina (H.Jones/USFWS)

FOS Jones assisted in the Smitherman's dam removal on the Little River in North Carolina in Nov. 2013. Removal of the Smitherman's Mill Dam made a big difference in allowing fish, mussels and people to move freely up and down Little River in Montgomery County, NC. By removing this massive concrete and rock wall at Smitherman's dam, 5.4 main stem river miles and over 30 perennial tributary stream miles were connected for a number of rare species in the Little River watershed. The dam remnants were used to rebuild a new riparian shoreline to stabilize the bank. The Little River is home to a dozen rare and threatened freshwater mussel species and two rare fish, one known as the Carolina redhorse. (*Also see section 5a, Interagency Coordination)*

Before (left) and after (right) removal of the Smitherman's Mill Dam (H. Jones/USFWS)

2d. Upland restoration: Off-refuge

See Section 5c., Private Lands Activities.

3

Habitat Management

3a and 3b. Manage water levels and moist soil units

On Coldwater River NWR, moist soil units were managed for over-wintering waterfowl, migrating shorebirds, and to control willow and other invasive species. Figure 10 shows the approximate drawdown schedule followed in 2013. Early drawdowns began March 11 for units E, F, H, K, and U. Shorebirds responded fairly quickly to the drying units and water was allowed to evaporate slowly over the course of several months. Units E, K, and U were nearly dry by May 21. Units F and H had some drainage issues and took several weeks longer to dry. The mid-season drawdowns began on May 13 for units C, D, G, I, J, L, T, V, and W. The drawdown on unit I was halted on June 11 with the appearance of 2 young (flightless) pied-billed grebe who presumably hatched on that unit. The drawdown on this unit resumed on July 22.

Fall shorebird drawdowns were scheduled to occur on units A, B, Q, and S and start dates were staggered every 2 weeks in July and August. Units B, S, and Q had water added to prolong use by shorebirds and also to allow wood duck trapping. Additionally, unit A began backfilling from the ditch before much of a mudflat was able to develop.

Select units were reflooded beginning August 12 to insure some units had water when the teal returned. During August, units C, J, L, T, and V were disked and portions of units D, E, G, H, U, and W were mowed. The majority of the units were at least shallowly flooded by the end of September.

Dowitchers (top), black-necked stilts (lower left), lesser yellowlegs (center), and killdeer (lower right) frequently forage in the ponds at Coldwater River NWR (B. Rosamond/USFWS)

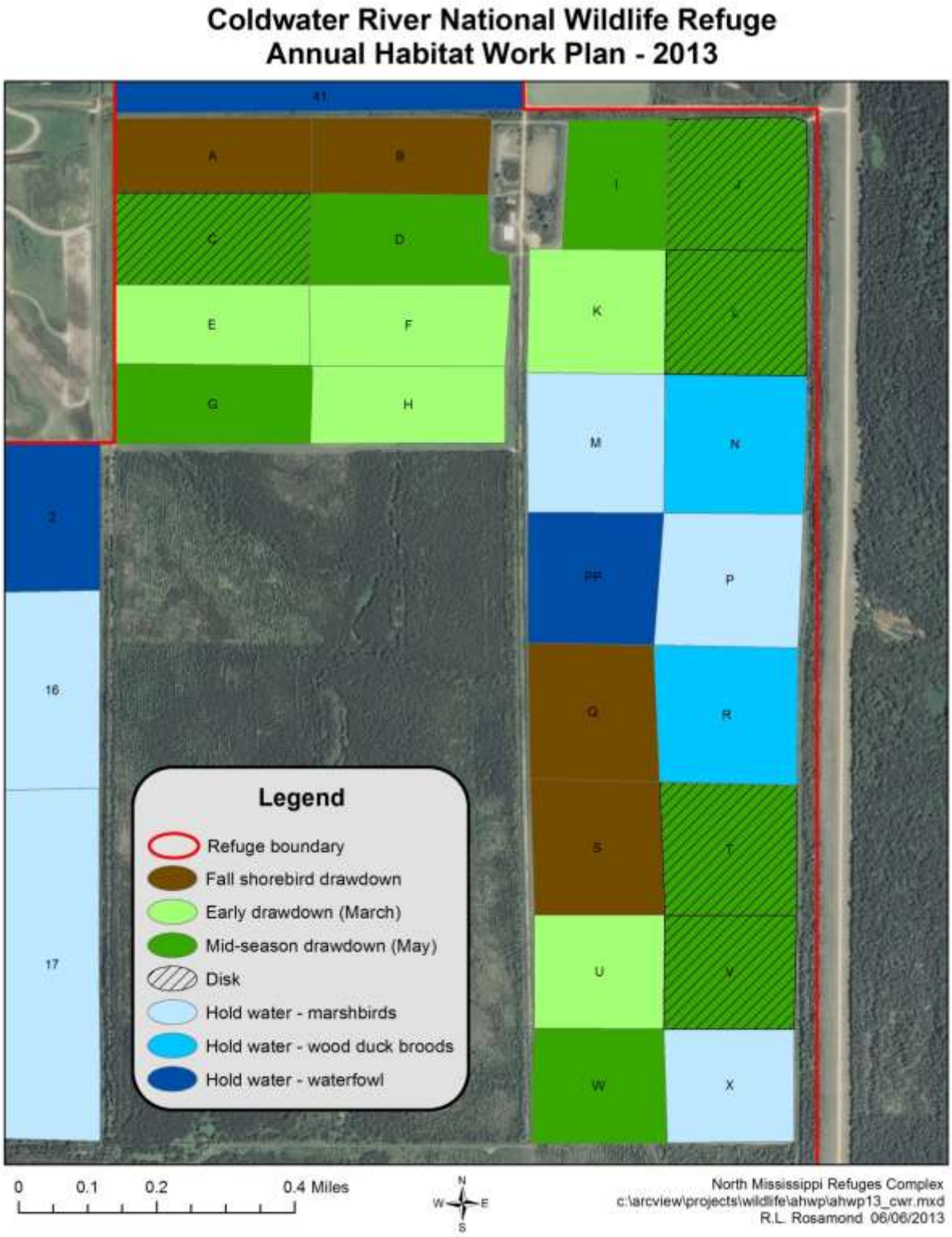

Figure 10: Annual habitat work plan for Coldwater River NWR

EEO's Perry (left) and Leachman (right) mowed and disked various units at CWR to encourage production of moist-soil plants for wintering waterfowl. (B. Rosamond/USFWS)

Moist soil units 9 – 12 at Dahomey were left fallow again this year. Drawdowns began mid-May and the units dried quickly. Units were boarded and flooded in early August. Units had to be repumped several times to maintain the water levels. Moist soil units 30 and 40 were not farmed this year, however, water was held on the unit throughout the summer to control the growth of woody vegetation within the unit. These units were flooded beginning in early August. Waterfowl response to the flooded areas was much lower than in previous years with cooperative farming.

The green tree reservoir at Dahomey was not boarded the winter of 2013 – 2014. At the present time, the levee has a blow-out and needs to be repaired. Portions of the green tree reservoir and other bottomland hardwood habitats on the Refuge flood naturally, providing loafing habitat for wintering waterfowl.

The moist soil units at Tallahatchie and the units at Walker remained boarded throughout the summer, gradually drying and providing habitat for a variety of birds. All units were reflooded in late July.

Pied-billed grebe on nest (left) and young pied-billed grebes (right). (B. Rosamond/USFWS)

3c. Graze/mow/hay

For maintenance purposes, pond levees at Coldwater River NWR, Henson Tract, Walker Tract, and the levees around the moist soil units at Tallahatchie NWR (units 25 – 28, 30, 31) were mowed periodically throughout the summer. Additionally, maintenance mowing on Tallahatchie NWR and the FSA tracts open to small game hunting was completed in October. EEO Roby completed roadside and boundary mowing on Dahomey NWR in September in preparation for hunting.

No haying or grazing occurred on the Complex in 2013.

3d. Farming

The NMRC decided not to Cooperative Farm on the Refuges in 2013 due to staff shortages and the ongoing Programmatic Environmental Assessment evaluating the use and effects of genetically modified crops (GMC's) in response to several lawsuits.

3e. Forest Cutting

No forest cutting occurred on NMRC lands in 2013.

3f. Prescribed burning

NMRC did not conduct any prescribed burning in 2013. At the present time, NMRC has one employee qualified to work prescribed fire.

3g. Control pest plants

Several species of invasive plants were present on Refuge lands in 2013. These include chinaberry (*Melia azadarach*), chinese privet (*Ligustrum sinense*), parrot feather (*Myriophyllum aquaticum*), and alligator weed (*Alternanthera philoxeroides*). Due to staffing issues, no treatment occurred during 2013. A vigorous stand of coontail and filamentous algae spread across Happy Hollow pond, covering the shallow 8-acre pond nearly 100 percent. This will be treated with fluridone in spring 2014 to control the vegetation and improve the fishing opportunities at Dahomey.

Dense coontail and filamentous algae at Happy Hollow pond, Dahomey NWR (A. Breland/USFWS)

4

Fish and Wildlife Management

4a. Bird banding

During the summer of 2013, WB Rosamond, RM Breland, SCAs Jon Whiting and Andrew Blomberg and Volunteers Ben, Thomas, Natalie, and Ken Rosamond trapped and banded wood ducks at Coldwater River NWR using swim-in traps. Three sites were pre-baited and monitored with game cameras until wood ducks found the site. Once ducks began using the site consistently, a swim-in trap was set up on location. Trapping was conducted in both the morning and evening dependent on weather conditions. Traps were set at either 5:00 am or 3:00 pm and then checked within three hours to reduce the possibility of predation.

Table 14 below summarizes the results of these efforts. This trapping was conducted in an effort to meet the pre-season banding goals for the Complex.

Table 14: Sex and age of wood ducks banded at Coldwater River NWR in 2013.

Date	Location	Adult male	Adult female	Immature male	Immature female	Total
7/13/2013	Unit P	1	4	0	0	5
7/22/2013	Unit M	0	3	2	1	6
9/23/2013	Unit S	5	0	3	2	10
Totals		**6**	**7**	**5**	**3**	**21**

SCA intern Blomberg and WB Rosamond banding a wood duck (left) and a hen wood duck (right) at Coldwater NWR (A. Breland/USFWS)

Volunteer Ben Rosamond (left) prepares to release a banded drake wood duck at Coldwater River NWR and SCA Whiting (below) attaches a band. (B. Rosamond/USFWS)

4b. Disease monitoring and treatment

Nothing to report

4c. Reintroductions

Nothing to report

4d. Provide nest structures

WB Rosamond prepped all boxes prior to March. Monitoring was sporadic on all boxes, and many boxes at Dahomey and on the Gillion Tract were only visited during the initial cleaning and prepping. In general, predation of boxes is fairly high, particularly on Dahomey, Tallahatchie, and Walker. It appears that most predation is by rat snakes with occasional predation by woodpeckers (especially at Tallahatchie along the boardwalk). Although boxes are equipped with predator guards, many of the snakes in these areas are quite large and are able to get around the guards. Currently, 64 boxes are present on Coldwater River, Dahomey, Tallahatchie, Gillon, and the Walker Tract. Due to inconsistent monitoring during 2013, data were not summarized. In addition to wood ducks, the nest boxes were also used for nesting by hooded mergansers and Carolina wrens, and as roosts by screech owls.

4e. Predator and exotic control

Feral hogs continue to be a problem on Refuge lands, particularly Dahomey, Tallahatchie, the Walker Tract, and many of the FmHA properties. Hogs are extremely destructive to wildlife habitat, and also cause damage to levees, roads, and crops. Additionally, wild hogs may be infected with brucellosis, an infectious disease caused by bacteria which can be transmitted to humans and other species of wildlife.

The shooting of feral hogs by permitted hunters during open hunting seasons is strongly encouraged. During the squirrel and deer hunting seasons, 47 hogs were killed on Dahomey. On Tallahatchie, FOS Jones, EEO Roby, and WB Rosamond made multiple captures and killed 37 hogs in the corral trap on Perkins Ridge.

Project Leader Gard and DPL Carpenter continue to work with the Mississippi Department of Agriculture, Wildlife Services (USDA), the Extension Service, and private landowners as part of the Wild Hog Task Force geared to addressing the issues of managing wild hogs in Mississippi. The Complex loaned portable hog traps to several landowners with farms adjacent to Dahomey. These traps are available to loan out to any adjacent landowner outside of hunting season.

Nutria are present on all three Refuges. Although the numbers have been low for several years, the population now appears to be increasing. When present in large numbers, they damage the levees and feed in the moist soil units. WB Rosamond removed 4 nutria from Coldwater River NWR during 2013. Nutria control efforts are likely to increase in 2014.

Beaver are common on NMRC properties and interfere with wildlife management activities by plugging culverts, ditches, and water control structures. During the spring and summer of 2013, NMRC staff cleared beaver debris from numerous water control structures and cleared beaver dams from streams and ditches to release ponded water. No Special Use Permits were issued to adjacent landowners for beaver dam removal on NMRC properties and easements this year. Summer droughts the last two summers have helped reduce the impacts of beavers on refuge lands.

5

Coordination Activities

5a. Interagency coordination

- The Terrestrial Ecologist for the Inventory and Monitoring Branch of the Service is located at the NMRC. David Richardson works out of the Grenada office.

Terrestrial Ecologist David Richardson (H.Jones/USFWS)

- NMRC staff worked with NRCS in their annual Arbor Day tree giveaway. The Complex provided the trees which were distributed to the public by NRCS and Refuge staff. The event was held at the NMRC headquarters this year.

- The NMRC Headquarters conference room was used as a meeting site for a number of groups, including: the MDWFP biologists, the Grenada Chamber of Commerce, the Envirothon planning committee, NRCS Teacher Workshops, and Civil Defense.

- NMRC hosted two Hunt Coordination meetings in 2013. Attendees of the May 2 meeting included representatives from all National Wildlife Refuges in Mississippi, Army Corps of Engineers, U.S. Forest Service, and Mississippi Department of Wildlife, Fisheries, and Parks. The second meeting, held September 24, was attended by MDWFP staff and Refuges staff, including Area Supervisor Elizabeth Souheaver. These meetings provide a forum for the State to communicate any changes to the upcoming hunting season and Federal landowners to provide their proposed regulation to State officials.

- WB Rosamond attended the Atlantic Flyway Wingbee in Laurel, Md. During the course of the week, approximately 18,000 waterfowl parts were examined and evaluated.

- The Complex provided the use of a tractor for heavy equipment training held in Meridian, MS.

- FOS Jones partnered with staff from American Rivers, Piedmont Conservation Council, The National Oceanic and Atmospheric Administration (NOAA), US Fish and Wildlife Service (Ecological Services, Refuges, and Fisheries) and private landowners to successfully remove two dams along the Uwharrie River and Little River in North Carolina. Other partners participating in research are the NC Wildlife Resources Commission, NC Natural Heritage Program, Duke Energy-Progress, Appalachian State University, Duke University, University of Virginia, and volunteers. This project restored the river's historic flow levels, allowing protected species including the American shad to migrate to spawning habitat.

- FOS Jones worked with staff from the Private John Allen Fish Hatchery to stabilize the bank along the Buttahatchie River near Columbus, MS.

- WB Rosamond provided technical guidance to the USACOE concerning the placement of a large bat box at Sardis Lake, as well as interpretive display content.

Several state and federal agencies were represented at the annual hunt coordination meeting, hosted by NMRC (H.Jones/USFWS)

5b. Private land activities

The Regional Office made the decision not to fill the private lands biologist position when it became vacant in February 2009. North MS Refuges Complex still receives numerous calls about potential partners for fish and wildlife projects, but without staff and funding, the majority of these calls are sent to the Jackson ES office. Three projects were completed in FY13 by NMRC staff. Table 15 summarizes the annual accomplishments on private lands for 2013.

Table 15 . Summary of Fiscal Year 2013 Accomplishments for the Private Lands Program.

Project Name	Program	Wetland (ac)	Upland (ac)	Total Acres
Pillow Project	PFW	30	0	30
Bruss Project	PFW	10	0	10
Junheim Project	PFW	10	0	10
Totals		50		50

c. Tribal coordination

Nothing to report

5d. Oil and gas activities

Nothing to report

5e. Cooperative/Friends Organizations

The Friends of Dahomey National Wildlife Refuge Inc. continued to be a strong partner for the refuge. They assisted the refuge by hands-on volunteering, providing support through outreach, and funding projects through grants. 2013 Highlights include:

- The group sponsored and participated in the annual Dahomey/Great River Road Christmas Bird Count.
- A Friends of Dahomey NWR Facebook page was maintained and used as a means of sharing events and other recreational opportunities with the public.
- Volunteers from the group continued to maintain the butterfly garden and the Herbert Nature Trail throughout the spring and summer. This included the addition of new beds and plants to the garden through a grant secured by Dr. Ellen Green.
- Volunteers from the group constructed a composting bin at the headquarters building for disposing of waste from the butterfly garden.
- In April, the group set up a booth at the Crosstie Art and Jazz Festival in Cleveland, MS.
- The group hosted an interpretive hike around Herbert Nature trail on Saturday, May 18. It was very successful with over 40 participants from a diversity of backgrounds and age groups.
- A membership drive and butterfly watching even was scheduled for Oct. 5 at the Dahomey headquarters building. The local 4-H club was going to collect (with an SUP)

and identify insects as part of an educational activity. Due to the government shutdown this was cancelled.

- The Friends participation in the annual Octoberfest in Cleveland, MS was cancelled due to the government shutdown. NMRC provides wildlife mounts, pamphlets, etc. that was unavailable during the shutdown.

Friends member Nathan Schiff works in the butterfly garden at Dahomey NWR (Ellen Green/Friends of Dahomey NWR)

6

Resource Protection

6a. Law Enforcement

The NMRC has two collateral duty Federal Wildlife Officers (PL Gard and DPL Carpenter) that are responsible for Refuge law enforcement on the three Refuges and 127 FSA properties in 22 counties throughout northern Mississippi. Due to declining budgets the Regional Office abolished the full-time Federal Wildlife Officer (FWO) position at the Complex. FWOs Gard and Carpenter spent a considerable amount of time enforcing Refuge regulations after a year of no full-time FWO. One year of no regular patrols on the Refuges and FSA tracts led to a very busy year of violations in 2013.

Hunting violations (left) and vandalism of Refuge property (right) were some of the issues Federal Wildlife Officers addressed during 2013. (T. Carpenter/USFWS)

The following are station highlights for 2013:

- The NMRC supplied targets for the Region 4 annual in-service training.
- PL Gard and DPL Carpenter attended the annual LE in-service training in Jackson, MS in March 2013.
- NMRC hosted the Federal Wildlife Officer Law Enforcement firearms re-qualification training on August 20. The Region 4 Chief, MS Zone Officer , eleven (11) FWOs and two (2) Special Agents (SA) from MS attended the training. DPL Carpenter instructed the group on NWRS policy on use/carry of Electronic Control Devices (taser) for the Defensive Tactics section.

- Local law enforcement agencies utilized NMRC's small arms range for qualifications.

- PL Gard and DPL Carpenter assisted OLE with migratory bird enforcement on the opening weekend of dove season and teal season off-refuge. Several baiting cases, over limit, lead shot and license violations were cited by the task force.

- The OLE storage building at the NMRC headquarters was improved. A walk-in freezer was removed, the roof was replaced, and shelving was installed.

- New Federal Wildlife Officer decals and emblems were put on FWO Carpenter's vehicle.

- The black Chevrolet truck was approved as Class A law enforcement vehicle.

Table 16: Law Enforcement Violations Reported by NMRC in 2013-14 hunting season.

CODE	VIOLATION DESCRIPTION	NUMBER OF VIOLATIONS
50 CFR § 32.2 (f)	No Refuge Permit	6
Failure to comply with special regulations regarding hunting.	Failure to display/deposit completed Harvest Data Card	29
	No hunter's fluorescent orange during a hunting season.	25
	Violation of state regulations regarding to loaded weapon in vehicle.	7
	Hunting during a closed waterfowl day.	4
	Possession of alcohol while hunting.	1
50 CFR § 27.32(b)(1)(i) Operating boat in violation of US Coast Guard laws.	No personal flotation device.	1
50 CFR §27.31(l) Operating vehicle without proper headlights, taillights, or brake lights.	No trailer license plate.	3
	No vehicle license plate.	4

16 USC §718a	Hunt Migratory Waterfowl with Unsigned Duck Stamp Hunt Migratory Waterfowl without Duck Stamp	12 1
	TOTAL VIOLATIONS	83

6b. Wildfire preparedness

See section 3f.

6c. Manage permits and economic uses

Nothing to report

6d. Contaminant investigation and cleanup

Nothing to report

6e. Manage water rights

Nothing to report

6f. Manage cultural resources

EEO Roby and SCAs Whiting and Blomberg completed a rehabilitation project for a small graveyard located on Tallahatchie NWR. Weedy vegetation was cleared from the site and a fence was constructed around three headstones.

(A.Breland/USFWS)

6g. Federal Facility Compliance Act

Nothing to report

6h. Land acquisition

Tallahatchie NWR acquired a new 188 acre tract in December 2013. This area is located at the south end of the refuge and includes a portion of Tippo Bayou. Figure 12 shows the location of

the new tract. This land was acquired through a land swap with York Woods: York Woods purchased this land and transferred it to the Service, in exchange for the Warwick Tract.

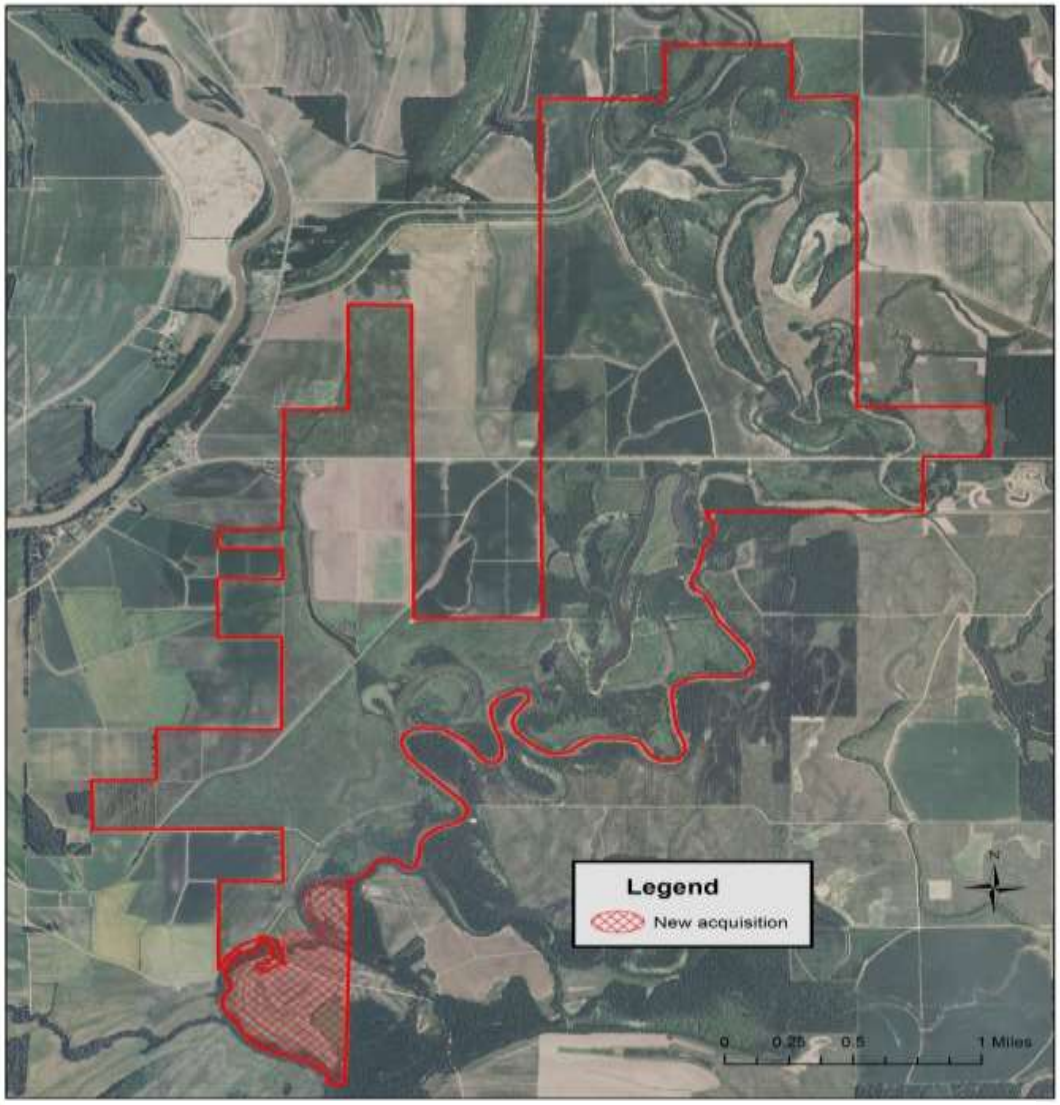

Figure 12: Map showing location of new acquisition on Tallahatchie NWR.

6i. Wilderness and natural areas

Nothing to report

6j. Threats and conflicts

Nothing to report

8

Public Education and Recreation

8a. Provide visitor services

- The 2013 – 2014 hunting and fishing regulations were updated to reflect changes to the hunting season.

- For the first time ever, NMRC permits were sold through the MDWFP's license sales system. Sales began September 1 and permit prices remained the same ($15), although some vendors charged a $2.75 fee for processing the sale. Permits were not available at the Grenada office, however, they could be purchased on the MDWFP website, on the phone by calling the MDWFP license line, or at any vendor that sells hunting and fishing licenses for the State. This new process was well advertised in local papers throughout the Delta region, on the Friends of Dahomey Facebook page, on all three NMRC refuge websites, and via a mass mailing to all permit holders from the previous hunting season. The public response was very positive.

- Hunters continue to be the primary user group for the Complex. Table 17 (below) shows the harvest and hunter usage summaries for the 2012 - 2013 hunting season, as reported on harvest information cards.

Table 17: Harvest and hunter usage summaries for the 2012 - 2013 hunting season.

Species	Coldwater	Dahomey	Tallahatchie	Total
Deer (Buck)	---	17	11	28
Deer (Doe)	---	11	12	23
Turkey	---	1	---	1
Wild Hog	---	47	0	47
Rabbit	---	6	146	152
Raccoon	---	29	0	29
Squirrel	---	884	28	912
Ducks	17	323	849	1189
Coots	---	---	121	121
Hunter visits	26	2577	1398	4001

- A concrete boat ramp and interpretive sign was completed off of Highway 8 at Tallahatchie NWR to provide improved access to Long Branch.

- The main kiosk at the Dahomey NWR headquarters building was replaced in April 2013. Panels were installed in May.

- A bat house with an interpretive kiosk was installed at the Beaver Brake observation tower at Tallahatchie NWR.

- The Private John Allen Fish Hatchery provided 3500 3-inch bass which were stocked in Long Branch at Tallahatchie NWR in June 2013.

A kiosk and bat house were added to the complex and Long Branch was stocked by the Private John Allen Fish Hatchery (All photos: B. Rosamond/USFWS)

8b. Outreach

The staff of NMRC is devoted to going beyond the blue goose signs to provide outreach to the public. Highlights for 2013 include:

- WB Rosamond conducted a bat program with a mist net demonstration for the Mississippi State University natural resources summer camp at Noxubee NWR. Approximately 30 students and chaperones attended.

- WB Rosamond conducted programs on frogs and insects (6 times each) to approximately 140 kindergarten students and teachers at Winona Elementary School.

- WB Rosamond conducted programs on frogs and bats for two teacher workshops, speaking to 48 participants.

- AO Willis staffed a booth for the Grenada Lower Elementary School's Kidzeum day. She showed the children an alligator skull and told them about the USFWS.

AO Willis with the alligator skull (Muffet McPhail)

- DPL Carpenter gave presentations about the USFWS to the Rotary Clubs in Marks and Cleveland, MS.

- WB Rosamond served as Science Fair judge at Kirk Academy in Grenada.

- WB Rosamond presented an animal program to 27 Kindergarten and 1st graders at Grenada Lower Elementary School.

- WB Rosamond presented a salamander program at the Strawberry Plains Audubon Center in Holly Springs. The program was open to the public and was attended by 17 adults and 8 children.

- DPL Carpenter gave a presentation about the NWRS to the Kiwanis Club.

- WB Rosamond and RM Breland assisted with a Nature in the Arts program for 25 students from Winona High School. The groups were led by art teacher Shirley Hamilton and local artist Robin Whitfield. Students checked minnow traps and handled native snakes along the Beaver Brake boardwalk and kayaked north of the Corps structure on Tippo Bayou.

- NMRC Staff prepared winter food plots for wildlife observation at both the Tallahatchie and Dahomey towers.

- A public paddling event was scheduled to be held at Tippo Bayou on Oct. 19. This was cancelled due to the government shutdown.

Several professors from Delta State University used Dahomey for classes and labs. Table 18 below reflects the number of visits, the number of students and the duration of the visit for classes during 2013.

Table 18: Summary of use of Dahomey by Delta State University classes during 2013.

Class	No. Students	No. Visits	Duration (hours)	Total Visitor Hrs.
Entomology (spring)	14	4	1.5	84
Ecology (spring)	25	1	3	75
Ecology (fall)	21	1	3	63
Wildlife Techniques	2	1	2	4
Herpetology	12	6	3	216
Population Ecology	6	12	2.5	180
Materials and Methods	17	2	2	68
Total	**97**	**27**	**66**	**688**

Additionally, Coldwater River NWR hosted the Ole Miss Ornithology class, led by Dr. Jason Hoeksema. (3 students, 1 visit)

Over 40 people participated in a guided hike coordinated by the Friends of Dahomey
(A.Barton/Friends of Dahomey NWR)

9

Planning and Administration

9a. Comprehensive management planning

9b. General administration

Tables 19 through 21 summarize the budget allocations for the complex in fiscal year 2013.

Table 19: North Mississippi Refuges Complex funding for fiscal year 2011.

Program	Accounting Code	Allocated ($)
Refuge Operations	1261-0000	388,428
Friends-Volunteer GR	1261-4VIP	14,000
I & M	1261-4LCC	10,396
Refuge Maintenance MMS/Salary	1262-0000	151,900
Annual Maintenance	1262-A4NM	124,612
Equipment Replace	1262-B4NM	10,000
Heavy Equipment Replacement	1262-H4NM	47,521
Visitor Services	1263-0000	167,920
ISP Reimbursement	1664-7002	1,860
Private Lands	1121-04HR	26,000
TOTAL		942,637

Table 20: North Mississippi Refuges Complex special program funding for fiscal year 2013.

Program	Accounting Code	Allocated ($)
Recycling	4557-0004	14,278
Rec Fee	8081-0000	108,803

Table 21: North Mississippi Refuges Complex funding levels and full time employees (FTE) since 1989

YEAR	FUNDING ($)	FTE
1989	209,400	2
1990	556,700	2
1991	575,600	3
1992	616,400	9
1993	651,400	10
1994	556,900	8
1995	515,300	9
1996	733,900	8
1997	762,860	8
1998	1,405,700	11
1999	1,405,700	13
2000	1,407,600	13
2001	1,025,900	12
2002	1,025,900	11
2003	1,812,800	10
2004	1,474,500	10
2005	1,780,800	10
2006	1,773,200	10
2007	1,773,200	10
2008	1,493,800	11
2009	1,655,300	8
2010	1,513,145	8
2011	1,627,716	8
2012	1,657,312	7
2013	1,065,718	7

10

Additional Highlights

10a. Meetings and Training

The staff participated in numerous meetings and trainings throughout 2013.

- WB Rosamond attended the annual Southeastern Bat Diversity Network meeting at Fall Creek State Park in Pikeville, Tennessee.

- WB Rosamond attended the annual meeting (Jackson, MS) and both WB Rosamond and RM Breland attended the annual mist netting event (Philadelphia, MS) of the Mississippi Bat Working Group. WB Rosamond served a second term as chair of the group.

- WB Rosamond participated in meetings of the Bear Education and Restoration (BEaR) group of Mississippi. She currently serves as secretary for the group.

- AO Willis completed a budget branch shadow at the Regional Office from January 14-17, 2013. She worked with Kimberly McClurg, Patricia Johnson, Joan Collier and Connie Lanahan in the Budget Branch; Jamise Promise in Contracting and General Services; and Karmen Nicholson in Budget and Finance.

- RM Breland attended explosives training at Sam D. Hamilton Noxubee NWR.

- RM Breland attended a feral hog workshop hosted by Delta Council and Delta Wildlife in Stoneville, MS.

- DPL Carpenter and WB Rosamond attended a 2-day meeting of the Mississippi Alluvial Valley Joint Venture to determine current DEDs for the state of Mississippi.

- WB Rosamond attended a symposium in Stoneville with presentations and discussions on the feasibility and potential ramifications of managing forests based on "Desired Forest Conditions."

10b. Work Programs

Due to staff shortages there was no Youth Conservation Corps (YCC) program in 2013.

Student Conservation Association (SCA) interns Jonathon Whiting and Andrew Blomberg worked on various projects during their terms. Both students assisted with building feral hog exclosures for the study at Dahomey NWR and reclaiming the gravesites at Tallahatchie NWR.

They also assisted WB Rosamond with mistnetting for bats, wood duck banding, running minnow traps to collect specimens for teacher workshops, and vegetation sampling associated with the feral hog exclosure study at Dahomey NWR. The interns were also exposed to other work done by USFWS during visits to the Private John Allen Fish Hatchery and Bon Secour NWR.

SCA Interns Blomberg and Whiting experienced vegetation sampling, bat mist netting, duck banding, and invertebrate/herp sampling while working at the North MS Refuges Complex (B. Rosamond and A. Breland/USFWS)

10c. Equipment and Facilities

A large two year Deferred Maintenance project was started at Coldwater River NWR in 2012. A ten thousand ton of clay/gravel contract was awarded to Townes Construction in Grenada to rehabilitate the levees on the moist soil impoundments. The contract was completed in July 2013. EEOs Riales, Lea, Perry, Leachman and Roby assisted on this project.

Gravel was placed along the west and north/northeast levees of the moist soil units at Dahomey NWR. EEOs Riales, Leachman, and Perry completed this project.

The Headquarters road at Dahomey NWR was improved with white rock. This completed the entire length of the road.

A new well was dug at the Happy Hollow pond. This was completed by in August 2013.

Entergy removed a utility pole and line at the grain bins at Tallahatchie NWR. These were no longer used and the slack line posed a hazard to vehicles hauling tall equipment.

FOS Jones and EEOs Riales, Leachman, and Perry replaced the tin roof on the pole barn at Dahomey NWR.

New carpet and baseboards were installed in the two offices in the back of the NMRC office building.

Pipes were replaced on Christmas Lake Road and Bear Road at Dahomey.

A new water control structure and levee were placed on the southeast corner or the agricultural fields on the west end of Dahomey NWR.

The following are significant equipment purchases that were made during 2013:

- 2013 John Deere 6430 ag tractor

10d. Other

- PL Gard participated in the Region 4 Mentoring Program as a mentor for the fourth year.
- PL Gard assisted as a supervisor for the Career Diversity Intern Program.
- PL Gard served as acting Project Leader for the Florida Keys NWR Complex for three weeks in January.
- PL Gard hosted Elizabeth Souheaver, Chuck Hunter, and Janet Ertel on a tour of Dahomey NWR to discuss Desired Forest Conditions (DFCs) and forest management for the regeneration plots at Tallahatchie NWR.

- DPL Carpenter was recognized for 20 years of service with USFWS.

- The NMRC was moved from Area II to Area I. The area supervisor is now Ricky Ingram instead of Elizabeth Souheaver.

- The Government Shutdown resulted in the furlough of all staff except PL Gard and DPL Carpenter. This lasted from Oct. 1 to Oct. 17, 2013. Impacts from this included losing a week of 1040 labor; cancellation of the Oct. 5 Friends of Dahomey butterfly garden event; cancellation of the Friends of Dahomey participation in the Cleveland, MS Oktoberfest; cancellation of the Tippo Bayou paddle event; cancellation of a shorebird survey at Coldwater NWR; postponement of external research and class trips at Dahomey NWR; and the cancellation of a 4-H entomology field trip.

- PL Gard continued to serve as the Region 4 representative on the Mississippi River Connection Collaborative.

Staff Listing

During 2013, NMRC experienced the following personnel actions:

- Carlton Leachman, Jimmy Perry, and Kevin Riales were re-appointed as 1040 Engineering Equipment Operators.

- Amber Breland was selected for the Refuge Manager position at Dahomey NWR.

North Mississippi Refuges Complex Staff (left to right): Bobbie Willis, Travis Carpenter, Stephen Gard, Hal Jones, Amber Breland, Becky Rosamond (D.Richardson/USFWS)

Table 22: Staff List for NMRC 2013

Permanent Full Time Employees	**Grade**	**EOD Date**	**Departure Date**
Stephen Gard Project Leader	GS-13	10/08/89	
Travis Carpenter Deputy Project Leader	GS-12	06/07/09	
Amber Breland Refuge Manager	GS-9	05/06/2013	
Rebecca Rosamond Wildlife Biologist	GS-12	02/03/01	
Hal Jones Facilities Operations Specialist	GS-11	08/08/94	

Bobbie Willis Administrative Officer	GS-9	09/28/98	
Don Roby Engineering Equipment Operator	WG-10	05/02/02	01/25/2014
Temporary Employees	**Grade**	**EOD Date**	**Departure Date**
Carlton Leachman Engineering Equipment Operator	WG-8	05/15/05	10/01/2013
Jimmy Perry Engineering Equipment Operator	WG-8	01/05/99	10/01/2013
Kevin Riales Engineering Equipment Operator	WG-8	05/15/05	10/01/2013

Credits

Amber Breland	Editing, photos
Travis Carpenter	Section 2 and 6, 10b, 10c, Table 16, editing, photos
Steve Gard	Editing
Hal Jones	Section 2, Editing, photos
Larry Pace	Photos
Becky Rosamond	Introduction, Section 1, 3, 4, 5, 8a, 8b, Figures 1-12, Tables 1-4, 6-15, 17 - 18, editing, photos
Bobbie Willis	Sections 9b, 10b, 10d, Tables 19 - 22, photos

Sunrise at Coldwater River NWR (B. Rosamond/USFWS)